

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**



VIA HAND DELIVERY JULY 29, 2004

DAC(1)  
IFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:  
Choi et al.

Docket No.: PB340P2

Application No.: 08/961,083

Confirmation No.: 6931

Filed: October 30, 1997

Art Unit: 1645

For: *Streptococcus pneumoniae* SP036  
Polynucleotides, Polypeptides, Antigens and  
Vaccines

Examiner: J. A. Hines

APPLICATION FOR PATENT TERM ADJUSTMENT  
UNDER 37 C.F.R. § 1.705(b)

MS Petition  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicants hereby request reconsideration of the patent term adjustment (PTA) indicated on Form PTOL-85 with the Notice of Allowance mailed on May 21, 2004. In particular, no calculation of PTA under 35 U.S.C. § 154(b) was presented with Form PTOL-85, despite a Continued Prosecution Application (CPA) having been filed on December 11, 2000. Instead, a calculation of patent term extension (showing 0 days extension) was performed. A proper PTA calculation would show that this application is entitled to at least 388 days of PTA due to Office delays, as described more fully below.

This application is being timely made, as it is being submitted concurrently with the issue fee payment. The requirements of 37 C.F.R. § 1.705(b)(1) are satisfied by the Fee Transmittal Sheet enclosed herewith, authorizing payment of the fee set forth in 37 C.F.R. 1.18(e). The requirements of 37 C.F.R. § 1.705(b)(2) are satisfied by the following statements, as supplemented by the attached Exhibits.

08/03/2004 SHASSEN2 00000135 083425 08961083

01 FC:1455 200.00 DA

## **Eligibility for PTA**

1. The instant application was originally filed on October 30, 1997. After extensive prosecution, a notice of allowance was mailed on February 1, 2000.

2. On April 27, 2000, an amendment under 37 C.F.R. § 1.312 and substitute sequence listing in paper and computer-readable form were filed, together with a signed issue fee transmittal (form PTOL-85B) authorizing the issue fee to be paid from deposit account 08-3425. Copies of these papers, and the date-stamped return receipt postcard evidencing their receipt by the Office on April 27, 2000, are attached as Exhibit A.

3. On October 24, 2000, a Response to Rule 312 Communication was mailed, indicating that the amendment was disapproved because “the PTO no longer accepts 312(b) amendments.” However, this Response was in error, as the amendment had been submitted concurrently with the issue fee payment, not after the date that the issue fee was paid.

4. On December 11, 2000, Applicants filed via facsimile a Continued Prosecution Application Request and a Petition to Withdraw Application From Issue Under 37 C.F.R. § 1.313(b)(1), together with a Fee Transmittal authorizing payment of the CPA fee, extra claims fees, and petition fee from deposit account 08-3425. As noted therein, these papers were filed to permit consideration of the erroneously disapproved amendment submitted on April 27, 2000. Copies of these papers are attached as Exhibit B.

5. The Office promptly granted the Petition on December 11, 2000, withdrawing the application from issue in favor of a CPA. A copy of the decision (“Decision”) is attached as Exhibit C.

6. As a CPA was filed and entered by the Office on December 11, 2000, this application is eligible for patent term adjustment under 35 U.S.C. § 154.

### **Correct PTA, Bases Therefor, and Relevant Dates**

7. The correct PTA due under 35 U.S.C. § 154(b)(1)(A) is at least 388 days. This PTA calculation does not include any PTA that may be due under 35 U.S.C. § 154(b)(1)(B); this application has been pending for more than three years since the filing of the CPA discussed above.

8. The period between the day after the date fourteen months after Applicants' CPA was filed and entered (February 12, 2002) and the date of mailing of the first notification under 35 U.S.C. 132 (the Office Action mailed March 6, 2003) is 388 days. Thus, the instant application is entitled to 388 days of patent term adjustment pursuant to 35 U.S.C. § 154(b)(1)(A)(i) and 37 C.F.R. §§ 1.702(a)(1) & 1.703(a)(1).

9. Applicants note that the dates shown in File History screen of the PAIR system (attached as Exhibit D) for the filing of the CPA and the corresponding Express Abandonment for entry of the CPA are incorrect. More particularly, the CPA is shown as being filed on April 27, 2000, and the corresponding Express Abandonment for entry of the CPA is listed on February 5, 2002. However, both of these dates should be given as December 11, 2000, as evidenced by the Decision. *See* Exhibit C. The calculations of PTA shown herein use the correct date of December 11, 2000; if the Office determines that the CPA should be treated as filed on April 27, 2000, then 228 additional days of PTA would be due.

10. Other communications were mailed by the Office prior to the Office Action mailed March 6, 2003. Applicants respectfully assert that these communications do not qualify as notifications under 35 U.S.C. 132. These communications, and Applicants' responses thereto, are discussed in detail below.

### **Terminal Disclaimer**

11. The instant application is not subject to a terminal disclaimer.

## **Efforts to Conclude Processing or Examination**

12. After the filing of the CPA discussed above on December 11, 2000, no action was taken by the Office until January of 2002, when the Examiner contacted the undersigned and requested copies of the papers filed on April 27, 2000, and December 11, 2000, as well as a copy of the Decision. Copies of these papers were provided by facsimile to the Examiner on January 18, 2002. The Fax Cover Sheet and confirmation page are attached as Exhibit E.

13. The first written communication from the Office subsequent to the Decision was the Notice of Non-Compliant Amendment mailed August 9, 2002. The Notice alleged that an amendment (presumably the Rule 312 amendment filed on April 27, 2000) did not comply with 37 C.F.R. 1.121 as amended September 8, 2000. Applicants contacted the Examiner on September 9, 2002, advising her that the Amendment had been properly filed in compliance with the rules governing amendments on that date. As requested by the Examiner, Applicants filed a reply to the Notice by facsimile on September 9, 2002. Copies of the Notice and the Reply are attached as Exhibit F. Applicants note that the PAIR entry for this Reply incorrectly identifies it as a "Response after Non-Final Action," and incorrectly lists the date as September 8, rather than September 9.

14. On November 14, 2002, a Notice to Comply with the sequence listing requirements was mailed. The Notice stated that the computer readable form (CRF) of the sequence listing submitted with the amendment of April 27, 2000 had not been received by the Office, and required a substitute paper sequence listing, CRF, and statements regarding the content thereof. The Notice is attached as Exhibit G.

15. The CRF had been properly submitted and received by the Office on April 27, 2000. *See* the date-stamped return receipt postcard included in Exhibit A. Thus, the Notice to Comply with the sequence listing requirements was in error to the extent that it claimed that "no such form has been received [sic] by the office."

16. Despite the error in the Notice to Comply with the sequence listing requirements, Applicants filed a response providing a replacement copy of the sequence

listing in paper and CRF, together with the required statement regarding their conduct, on December 13, 2002. Applicants also updated the formatting of the sequence listing to comply with the current sequence rules with regard to “n” nucleotides and “Xaa” amino acids for the convenience of the examiner. The previously submitted sequence listing was formatted according to the rules in place when it was filed (April 27, 2000). Copies of the response and sequence listing are attached as Exhibit H.

17. Applicants respectfully assert that the Notice of Non-Compliant Amendment mailed August 9, 2002, and the Notice to Comply with the sequence listing requirements mailed November 14, 2002, and Applicants’ replies thereto, do not evidence any circumstances constituting a failure to engage in reasonable efforts to conclude processing or examination of the application as set forth in 37 C.F.R. § 1.704. As discussed above, both notices were made in error, but Applicants nevertheless replied promptly in order to allow examination to continue expeditiously. Thus, none of Applicants’ filings from December 11, 2000 to the present fall within 37 C.F.R. § 1.704, and no reduction of PTA should be made.

18. To the extent that the papers provided by facsimile to the Examiner on January 18, 2002 could be considered a supplemental reply or other paper under 37 C.F.R. § 1.704(c)(8), Applicants point out that these papers were expressly requested by the Examiner via telephone. Thus, no reduction of PTA should be made based on this filing pursuant to 37 C.F.R. § 1.704(c)(8).

19. Although the amendment submitted on April 27, 2000 was made under 37 C.F.R. § 1.312, Applicants respectfully assert that any PTA reduction for this filing was obviated by the filing of the CPA on December 11, 2000. Thus, no reduction of PTA should be made pursuant to 37 C.F.R. § 1.704(c)(10).

20. A CPA was filed on December 11, 2000, as discussed in detail above. Thus, pursuant to 37 C.F.R. § 1.704(c)(11), no periods of adjustment prior to December 11, 2000 have been addressed herein.

21. Other than the circumstances described above, there have been no circumstances that could reasonably be construed as a failure to engage in reasonable efforts to conclude processing or examination of this application.

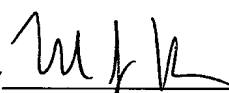
### CONCLUSION

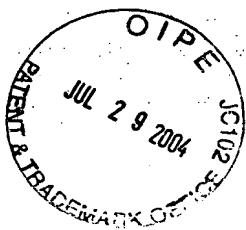
Applicants respectfully request that the PTA for the instant application be reconsidered in light of the facts and circumstances described above. In particular, Applicants maintain that the instant application is entitled to at least 388 days of PTA.

If any further information is required, please contact the undersigned at the number listed below. Please charge any additional fees due in connection with the filing of this paper, or credit any overpayment, to Deposit Account No. 08-3425.

Dated: July 29, 2004

Respectfully submitted,

By   
Mark J. Hyman  
Registration No.: 46,789  
HUMAN GENOME SCIENCES, INC.  
Intellectual Property Dept.  
14200 Shady Grove Road  
Rockville, Maryland 20850  
(240) 314-1224



HUMAN GENOME SCIENCES, INC.

**Please date stamp and return to addressee on reverse side**

Application of: Choi et al.

Application Number: 08/961,083

Filed: October 30, 1997

Title: *Streptococcus pneumoniae* Antigens  
And Vaccines

Group Art Unit: 1641

Examiner: Hines, J.

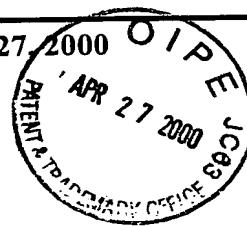
Attny. Docket No.: PB340P2

**Documents Filed Via Hand Delivery on April 27, 2000**

1. Postcard (1)
2. Amendment Under 37 C.F.R. § 1.312
3. Fee Transmittal Sheet, with appropriate fee (**in dupl.**)
4. Statement under 37 C.F.R. §§ 1.821-1.825
5. Substitute Sequence Listing in paper and computer readable form (6 pages)
6. Issue Fee Transmittal, with appropriate fee (**in dupl.**)

MSM/CB/mpb

Attn.: Legal Dept.







**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application of: Choi et al.

Application Number: 08/961,083

Group Art Unit: 1641

Filed: October 30, 1997

Examiner: Hines, J.

Title: *Streptococcus pneumoniae* Antigens  
And Vaccines

Attny. Docket No.: PB340P2

**AMENDMENT UNDER 37 C.F.R. § 1.312**

**BOX: AF**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

In response to the Notice of Allowance dated 01 February 2000 and in accordance with Rule 312 of the Rules of Practice, please consider the following amendments and remarks. Applicants submit concurrently herewith: (a) a Substitute Sequence Listing in paper and computer readable form; (b) a Statement under 37 C.F.R. §§ 1.821-1.825; (c) an Issue Fee Transmittal, with appropriate fee; and (d) a Fee Transmittal Sheet, with appropriate fee.

**Amendments**

**In the title**

Please delete the current title and replace therefor -- *Streptococcus pneumoniae* SP036 polynucleotides, polypeptides, antigens and vaccines --.

**In the specification**

Please amend the specification as follows:

Page 1, after the title, please insert --This application claims benefit of 35 U.S.C. section 119(e) based on copending U.S. Provisional Application Serial No. 60/029,960, filed

October 31, 1996--

Page 3, lines 17-18, please delete "sequences shown as SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, and so on through SEQ ID NO:226" and replace therefor -- sequence shown as SEQ ID NO:2 --.

Line 21, please delete "any of the amino acid sequences of the polypeptides" and replace therefor --the amino acid sequence of the polypeptide --.

Lines 22-23, please delete "any of the amino acid sequences of the polypeptides" and replace therefor --the amino acid sequence of the polypeptide--.

Page 4, line 5, please delete "any of the polypeptides " and replace therefor --the polypeptide--.

Page 5, line 10, please delete "one or more of the polynucleotides or polypeptides" and replace therefor --the polynucleotide and polypeptide--.

Line 22, please delete "amino acid sequences" and replace therefor --the amino acid sequence--.

Line 23-24, please delete "amino acid sequences" and replace therefor --the amino acid sequence--.

Lines 28-29, please delete ", SEQ ID NO:3, SEQ ID NO:5, and so on through SEQ ID NO:225) which are" and replace therefor -- ) which is --.

Page 7, line 16, please delete "of one or more of the *S. pneumoniae* polypeptides" and replace therefor --the *S. pneumoniae* polypeptide--.

Line 26, please delete "113 open reading frames (ORFs)" and replace therefor --one open reading frame (ORF)--.

Line 31, please delete "polypeptides" and replace therefor --polypeptide--.

Line 32, please delete "each" and replace therefor --the--.

Line 34, please delete "each" and replace therefor --the--.

Line 36, please delete "SP126" and replace therefor --SP036--.

Line 37, please delete "126" and replace therefor --036--.

Line 38, please delete "SP126" and replace therefor --SP036--.

Page 8, line 1, please delete "SEQ ID NO:223" and replace therefor --SEQ ID NO:1--.

Line 2, please delete "SEQ ID NO:224" and replace therefor --SEQ ID NO:2--.

Lines 8-9, please delete "each of the *S. pneumoniae* polypeptides" and replace therefor --the *S. pneumoniae* polypeptide--.

Line 9, please delete "Each" and replace therefor --The--.

Line 16, please delete " "Lys-1 to Ile-10" of SP001, represents a peptide comprising the lysine at position 1 in SEQ ID NO:2 through and including the isoleucine at position 10 in SEQ ID NO:2, but may include more or fewer residue than those 10" and replace therefor -- "Arg-10 to Arg-17" of SP036, represents a peptide comprising the arginine at position 1 in SEQ ID NO:2 through and including the arginine at position 17 in SEQ ID NO:2, but may include more or fewer residues than those 8.--

Line 24, please delete "each" and replace therefor --the--.

Line 37, please delete "many of the ORFs disclosed herein were" and replace therefor --the ORF disclosed herein was--.

Page 11, line 8, please delete "a number of the disclosed ORFs" and replace therefor -the disclosed ORF--.

Lines 14-16, please delete "polypeptides having the amino acid sequences described in Table 1 and shown as SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, and so on through SEQ ID NO:226, which were" and replace therefor --polypeptide having the amino acid sequence described in Table 1 and shown as SEQ ID NO:2, which was--.

Page 12, lines 30-33, please delete ",SEQ ID NO:3, SEQ ID NO:5, and so on through SEQ ID NO:225; DNA molecules comprising the coding sequences for the polypeptides described in Table 1 and shown as SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, and so on through SEQ ID NO:226;" and replace therefor --;DNA molecules comprising the coding sequences for the polypeptide described in Table 1 and shown as SEQ ID NO:2;--.

Page 13, line 2, please delete "any one of those" and replace therefor --that--.

Line 13, please delete "most, if not all, of a" and replace therefor --the--.

Line 17, please delete "nucleotide sequences identified in Table 1 are provided as

SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, and so on through SEQ ID NO:225,” and replace therefor --nucleotide sequence identified in Table 1 is provided as SEQ ID NO:1,--.

Line 23, please delete “polypeptides” and replace therefor --polypeptide--.

Line 26, please delete “each” and replace therefor --the--.

Line 28, please delete “polypeptides” and replace therefor --polypeptide--.

Page 14, line 11, please delete “most, if not all, of”.

Line 14, please delete “sequences” and replace therefor --sequence--.

Line 24, please delete “SEQ ID NO:3, SEQ ID NO:5, and so on through SEQ ID NO:225,”

Page 15, line 1, please delete “residues” and replace therefor --residue--.

Line 16, please delete “residues” and replace therefor --residue--.

Lines 30-31, please delete “(e.g., another sequence selected from Table 1)”.

Line 34, please delete “polypeptides” and replace therefor --polypeptide--.

Page 16, line 11, please delete “substitution” and replace therefor --substitutions--.

Line 17, please delete “any of the amino acid sequences of the polypeptides” and replace therefor --the amino acid sequence of the polypeptide --.

Line 19, please delete “any of the nucleotide sequences” and replace therefor --the nucleotide sequence--.

Line 36, please delete “some of the nucleic acid sequences” and replace therefor --the nucleic acid sequence--.

Page 17, line 23, please delete “sequences” and replace therefor --sequence--.

Line 34, please delete “these nucleotide sequences” and replace therefor --the nucleotide sequence--.

Page 21, lines 24-25, please delete “sequences described in Table 1, and shown as SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, and so on through SEQ ID NO:226” and replace therefor --sequence described in Table 1, and shown as SEQ ID NO:2--.

Line 34, please delete “polypeptides” and replace therefor --polypeptide--.

Page 22, line 3, please delete “epitopes for each polypeptide is delineated” and replace therefor --epitopes for the polypeptide are delineated--.

Line 10, please delete “polypeptides” and replace therefor --polypeptide--.

Line 14, please delete “polypeptides” and replace therefor --polypeptide--.

Line 15, please delete “any one of the polypeptides” and replace therefor --the polypeptide--.

Page 23, line 7, please delete “sequences shown in Table 1 may have on” and replace therefor --sequence shown in Table 1 may have one--.

Page 25, line 15, please delete “sequences” and replace therefor --sequence--.

Line 20, please delete “polypeptides” and replace therefor --polypeptide--.

Page 29, line 18, please delete “sequences” and replace therefor --sequence--.

Page 32, line 4, please delete “polypeptides” and replace therefor --polypeptide--.

Page 36, line 26, please delete “more than one of the *S. pneumoniae* polypeptides” and replace therefor --the *S. pneumoniae* polypeptide--.

Line 27, please delete “one or more, for example 2 to 10, of the *S. pneumoniae* polypeptides” and replace therefor --the *S. pneumoniae* polypeptide--.

Line 35, please delete “ofS.” and replace therefor --of *S.* --.

Line 35, please delete “that” and replace therefor --the--.

Page 37, line 1, please delete “one or more the *S. pneumoniae* polypeptides” and replace therefor --the *S. pneumoniae* polypeptide--.

Line 2, please delete “the *S. pneumoniae* polypeptides” and replace therefor --the *S. pneumoniae* polypeptide--.

Page 41, line 32, please delete “sequences” and replace therefor --sequence--.

Line 41, please delete “polypeptides” and replace therefor --polypeptide--.

Line 37, please delete "polypeptides" and replace therefor --polypeptide--.

Page 42, line 8, please delete "polypeptides" and replace therefor --polypeptide--.

Line 15, please delete "NO:227 through SEQ ID NO:452" and replace therefor --NO:3 through SEQ ID NO:4--

Line 20, please delete "sequences" and replace therefor --sequence--.

Page 43, line 4, please delete "4 C" and replace therefor --4°C--.

Line 24, please delete "sequences" and replace therefor --sequence--.

Line 28, please delete "Each of the polynucleotides" and replace therefor --The polynucleotide--.

Lines 30-34, please delete "These pQE10 plasmids containing the DNAs of Table 1, except SP023, SP042, SP054, SP063, SP081, SP092, SP114, SP122, SP123, SP126, and SP127, were deposited with the ATCC as a pooled deposit as a convenience to those of skill in the art. This pooled deposit was deposited on October 16, 1997 and given ATCC Deposit No. 209369. Those of ordinary skill in the art appreciate that isolating an individual plasmid from the pooled deposit is trivial provided the information and reagents described herein. Each of the deposited clones is capable of expressing its encoded *S. pneumoniae* polypeptide."

Page 47, line 18, after "incorporated by reference" please insert --; however, U.S. Provisional Application Serial No. 60/029,960, filed October 31, 1996, is not incorporated by reference.--

Please delete Table 1, Table 2 and Table 3 at pages 48-110 and replace therefor with the following new Tables 1, 2 and 3:

### Table 1

**SP036 nucleotide (SEQ ID NO:1)**

TTCTTACGAGTTGGGACTGTATCAAGCTAGAACGGTTAAGGAAAAATAATCGTGTTTCCATATATAGATGGAAAAACA  
AGCGACGCAAAAAACGGAGAATTTGACTCCTGATGAGGTTAGCAAGCGTGAAGGAATCAATGCTGAGCAAATCGT  
CATCAAGATAACAGACCAAGGCTATGTCTACCTTCACATGGCGACCACATCATTTATTTACAATGGTAAAGTTCCCTTA  
TGACGCTATCATCAGTGAAGAAATTACTCATGAAAGATCCAAACTATAAGCTAAAAGATGAGGATATTGTTTAATGA  
GGTCAAGGGTGGATATGTTATCAAGGTAGATGGAAAAATACTATGTTTACCTTAAAGGATGCTGCCACCGCGGATAA  
CGTCCGTCACAAAAGGAAATCAATCGACAAAAAAGAGCATAGTCAACATCGTGAAGGTGGAAGTCCCAAGAAA  
CGATGGTGCTGTTGCCCTTGGCCAGCTTCGCAAGGACGCTATACTACAGATGATGGTTATATCTTTAATGCTCTCTGA  
TATCATAGAGGATACTGGTGATGCTTATATCGTTCCCTCATGGAGATCATTACCATTACATTCCTAAGAATGAGTT  
ATCAGCTAGCGAGTTGGCTGCTGCAGAAAGCCTTCCATCTGGTCGAGGAAATCTGTCAAATTCAGAACCCTATCG  
CCGACAAAAATAGCGATAACACTTCAAGAACAAACTGGGTACCTTCTGTAAGCAATCCAGGAACACAAAATACTAA  
CACAAGCAACAAACAGCAACACTAACAGTCAAGCAAGTCAAAGTAATGACATTTGATAGTCTCTTTGAAACAGCTCTA  
CAAACCTGCCCTTTGAGTCAACGACATGTAGAATCTGATGGCCCTTGCTCTTTGATCCAGCACAAATCACAAGTCGAAC  
AGCTAGAGGTGTTGCAGTGCCACACCGGAGATCATTACCACCTTCATCCCTTACTCTCAAATGCTCTGAATTGGAAGA  
ACGAATCGCTCGTATTTATTTCCCTTCGTTATCTGTTTCAAACCATTTGGGTACCAGATTCAAGGCCCAAAACCAAG  
TCCACAACCCGATCTCCGGAACCTAGTCTCAGGCCGCGCAACCTGCACCAAAATCTTAAATAGACTCAAATTCCTCTTT  
GGTTAGTCAGCTGGTACGAAAAGTTGGGGAAGGATATGTATTTCGAAGAAAAGGGCATCTCTCGTTATGCTCTTTGC  
GAAAGATTTACCATCTGAAACTGTTAAAAATCTTGAAAGCAAGTTATCAAAAACAAGAGAGTGTTTTCACACACTTT  
AACTCGCTAAAAAAGAAAAATGTTGCTCCTCGTGACCAAGAAATTTTATGATAAAGCATATAATCTGTTAACTGAGGC  
TCATAAAGCCCTTGTTTGNAAAAAAGGGTTCGTAAATCTGATTTCCAAGCCCTTAGACAAAATTATTAGAACGCCTTGAA  
TGATGAATCGACTAATAAAGAAAAAATTGGTAGATGATTTTATTGGCATTCCTTAGCACCAATTACCCATCCAGAGCG  
ACTTTGGCAAACCAAATTCCTCAAATTGAGTATACTGAAGACGAAGTTCGTATTGCTCAATTAGCTGATAAGTATAC  
AAGTCAGATGGTTACATTTTGTGATGAACATGATATAAATCAGTGATGAAGGAGATGCATATGTAACGCCCTCATAT  
GGGCCATAGTCACTGGATTGGAAAAGATAGCCCTTTCTGATAAGGAAAGGTTGCAAGCTCAAGCCCTACACTAAAGA  
AAAAGGTATCCTTACCCTCCATCTCCAGACGCAGATGTTAAAGCAAAATCCAACCTGGAGATAGTGCAGCAGCTATTTA  
CAATCGTGTGAAAGGGGAAAAACGAATCCACCTCGTTTCGACTTCCATATATATGGTTGAGCATACAGTTGAGGTTAA  
AAACGGTAATTTGATTATTCCTCATAAGGATCATTACCATAAATATTAATTTGCTTTGGTTTGATGATCACACATA  
CAAAGCTCCAAATGGCTATACCTTTGGAAAGATTTTGTTTTGCGACGATTAAGTACTACGTAGAACACCCCTGACGAACG  
TCCACATTTCTAATGATGGATGGGGCAATGCCAGTGAGCATGTGTTAGGCAAGAAAGACCACAGTGAAGATCCAAA  
TAAGAACTTCAAAGCGGATGAAGAGCCAGTAGAGGAAACACCTGCTGAGCCAGAAGTCCCTCAAGTAGAGACTGA  
AAAAGTAGAAGCCCAACTCAAAGAAGCAAGTTTTGTGCTGCGAAAGTAACGGATTCCTAGTCTGAAAGCCAAATGC  
AACAGAAACTCTAGCTGGTTTACGAAATAAATTTGACTCTTCAAATATGGATAAACAATAGTATCATGGCAGAAGC  
AGAAAAATTACTTGCCTTGTTAAAAAGGAAGTAATCCTTCATCTGTAAAGTAAGGAAAAATAAAC

**SP036 amino acid (SEQ ID NO:2)**

SYELGLYQARTVKENNRVSYIDGKQATQKTENLTPDEVSKREGINAEQIVIKITDQGYVTSBGHDHYHYNGKVPY  
DAIISEELMKDPNYKLKDEDIVNEVKGGYVIVKVDGKYYVYLKDAAHADNVRTKEEINRQKQEHSHQREGGTPRN  
DGAVALARSQGRYTDDGYIFNASDIIEDTGDAYIVPHGDHYHYIPKNELSAELAAAEAFLSGRGNLSNSRTYR  
RQNSDNTSRTNWVPSVSNPGTTNTNTSNNSNTNSQASQSNIDSLKQLYKLPLSQRHVESDGLVDFPAQITSRT  
ARGVAVPHGDHYHFIPYSQMSELEERIARIIPLYRSNHWVPDSRPEQPSQOPTPEPSPGQPAPNLKIDSNSSL  
VSQLVKVGEGYVFEEKGISRYVFAKDLPSETVKNLESKLSKQESVSHTLTAKKENVAPRDQEFYDKAYNLLTEA  
HKALFXNKGKRNDSFQALDKLLERLNDESTNKEKLVDDLLAFLAPITHPERLGKPNSSQIEYTEDEVRIAQLADKYT  
TSDGYIFDEHDIISDEGDAYVTPHMGHSHWIGKDSLSDKEKVAAQAYTKEKGILPPSPDADVKNPTGDSAAAIY  
NRVKGKRIPLVRLPYMVEHTVEVKNGNLIIPHDKDHYHNKIFAWFDDHTYKAPNGYTLEDLFATIKYYVEHPDER  
PHSNDGWGNASHEVLGKDKHSEDPNKNFKADEEPVEETPAEPEVPQVETEKVEAQLKEAEVLLAKVTDSSLKANA  
TETLAGLRNNLTLOIMDNNSIMAEAEKLIKALLKGSNPPSSVSEKIN

**Table 2**  
***S. pneumoniae* Antigenic Epitopes**

**SP036**

Arg-10 to Arg-17; Lys-29 to Ser-39; Ser-140 to Ala-153; Arg-158 to Tyr-169; Asp-175 to Ala-183; Gly-216 to Asn-236; Ala-261 to Leu-270; Arg-282 to Phe-291; and Thr-297 to Ala-305; Pro-342 to Gln-362; Phe-455 to Asp-463; His-497 to Thr-511; Ala-521 to Gly-529; Ile-537 to Val-546; Ile-556 to Ala-568; Pro-581 to Ser-595; Glu-670 to Ala-685; Ser-696 to Ala-705 and Leu-782 to Ser-791

**Table 3**

<b>Primer</b>				<b><i>S. pneumoniae</i> ORF Cloning Primers</b>			
<b>Name</b>	<b>SEQ ID</b>	<b>Sequence</b>		<b>RE</b>			
SP036A	NO:3	AGTCGGATCCTTCTTACGAGTTGGGACTGTATCAAGC		Bam HI			
SP036B	NO:4	AGTCAAGCTTGTTTATTTTTTCCTTACTTACAGATGAAGG		Hind III			

Please replace the pages of the Sequence Listing at pages 111-388 of the specification with the Substitute Sequence Listing (6 pages, numbered 1-6) submitted herewith.

Please renumber the pages accordingly.

*In the claims:*

Please amend the claims as follows:

-- 198. (Amended) An isolated nucleic acid molecule comprising a polynucleotide selected from the group consisting of:

- (a) a polynucleotide encoding amino acids 1 to 796 of SEQ ID NO:[56]2;
- (b) a polynucleotide encoding amino acids 2 to 796 of SEQ ID NO: [56]2;
- (c) a polynucleotide encoding an epitope-bearing portion of amino acid residues 1 to 796 of SEQ ID NO: [56]2;
- (d) a polynucleotide probe encoding at least 15 contiguous amino acid residues of amino acid residues 1 to 796 of SEQ ID NO: [56]2;
- (e) a polynucleotide consisting of at least 50 contiguous nucleotides of nucleotides 1-2389 of SEQ ID NO: [55]1; and



(f) a polynucleotide completely complementary to a polynucleotide in (a), (b), (c), (d), or (e) above.

205. (Amended) The isolated nucleic acid molecule of claim 199, wherein said polynucleotide is SEQ ID NO: [55]1.

206. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Arg-10 to Arg-17 of SEQ ID NO: [56]2.

207. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Lys-29 to Ser-39 of SEQ ID NO: [56]2.

208. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Ser-140 to Ala-153 of SEQ ID NO: [56]2.

209. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Arg-158 to Tyr-169 of SEQ ID NO: [56]2.

210. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Asp-175 to Ala-183 of SEQ ID NO: [56]2.

211. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Gly-216 to Asn-236 of SEQ ID NO: [56]2.

212. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Ala-261 to Leu-270 of SEQ ID NO: [56]2.

213. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Arg-282 to Phe-291 of SEQ ID NO: [56]2.

214. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Thr-297 to Ala-305 of SEQ ID NO: [56]2.

215. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Pro-342 to Gln-362 of SEQ ID NO: [56]2.

216. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Phe-455 to Asp-463 of SEQ ID NO: [56]2.

217. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues His-497 to Thr-511 of SEQ ID NO: [56]2.

218. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Ala-521 to Gly-529 of SEQ ID NO: [56]2.

219. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Ile-537 to Val-546 of SEQ ID NO: [56]2.

220. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Ile-556 to Ala-568 of SEQ ID NO: [56]2.

221. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Pro-581 to Ser-595 of SEQ ID NO: [56]2.

222. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Glu-670 to Ala-685 of SEQ ID NO: [56]2.

---

223. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Ser-696 to Ala-705 of SEQ ID NO: [56]2.

224. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Leu-782 to Ser-791 of SEQ ID NO: [56]2.

225. (Amended) The isolated nucleic acid molecule of claim 202, wherein said polynucleotide encodes at least 30 contiguous amino acid residues of amino acid residues 1 to 796 of SEQ ID NO: [56]2.

226. (Amended) The isolated nucleic acid molecule of claim 203, wherein said polynucleotide consists of at least 100 contiguous nucleotides of nucleotides 1-2389 of SEQ ID NO: [55]1.

237. (Amended) An isolated polypeptide comprising a member selected from the group consisting of:

- (a) a polypeptide of amino acid residues 1 to 796 of SEQ ID NO: [56]2;
- (b) a polypeptide of amino acid residues 2 to 796 of SEQ ID NO: [56]2; and
- (c) an epitope-bearing portion of a polypeptide consisting of amino acid residues 1 to 796 of SEQ ID NO: [56]2.

241. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Arg-10 to Arg-17 of SEQ ID NO: [56]2.

242. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Lys-29 to Ser-39 of SEQ ID NO: [56]2.

243. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Ser-140 to Ala-153 of SEQ ID NO: [56]2.

244. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Arg-158 to Tyr-169 of SEQ ID NO: [56]2.

---

245. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Asp-175 to Ala-183 of SEQ ID NO: [56]2.

246. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Gly-216 to Asn-236 of SEQ ID NO: [56]2.

247. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Ala-261 to Leu-270 of SEQ ID NO: [56]2.

248. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Arg-282 to Phe-291 of SEQ ID NO: [56]2.

249. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Thr-297 to Ala-305 of SEQ ID NO: [56]2.

250. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Pro-342 to Gln-362 of SEQ ID NO: [56]2.

251. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Phe-455 to Asp-463 of SEQ ID NO: [56]2.

252. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues His-497 to Thr-511 of SEQ ID NO: [56]2.

253. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Ala-521 to Gly-529 of SEQ ID NO: [56]2.

254. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Ile-537 to Val-546 of SEQ ID NO: [56]2.

---

255. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Ile-556 to Ala-568 of SEQ ID NO: [56]2.

---

256. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Pro-581 to Ser-595 of SEQ ID NO: [56]2.

257. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Glu-670 to Ala-685 of SEQ ID NO: [56]2.

258. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Ser-696 to Ala-705 of SEQ ID NO: [56]2.

259. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Leu-782 to Ser-791 of SEQ ID NO: [56]2.

265. (Amended) The method of claim 17 wherein the polypeptide comprises amino acid residues 1 to 796 of SEQ ID NO:[56]2.

267. (Amended) The method of claim 17 wherein the polypeptide comprises an epitope-bearing portion of amino acid residues 1 to 796 of SEQ ID NO:[56]2.

#### Remarks

Claims 17-18 and 198-268 are allowed.

The title has been amended to more particularly identify the claimed invention.

The specification has been amended to: (a) delete text in the specification relating to the non-elected species and to cancel all sequence listings relating to the non-elected species; (b) recite sequence identifiers associated with the elected polynucleotides and polypeptides throughout the specification and the claims; (c) incorporate the Substitute Sequence Listing pursuant to 37 C.F.R. § 1.821 (c) and (d) renumber the pages of the claims accordingly. The above-mentioned amendments do not constitute new matter under 35 U.S.C. § 112.

---

Applicants submit that entry of the instant amendment does not raise new issues.

Particularly, as disclosed in the specification, Applicant's invention is considered to be the sequence corresponding to an individual polynucleotide or fragment of the *Streptococcus Pneumoniae* genome (see, e.g., page 6, lines 16-19), as each polynucleotide fragment or ORF of the genome is separately patentable in its own right. This position is bolstered by the Patent Office's arguments in the record that the non-elected sequences are not related to the claimed invention, as demonstrated by the fact that the Patent Office has restricted and

withdrawn claims directed to non-elected sequences throughout the prosecution of the instant application.

Deletion of the reference to ATCC Deposit No. 209369 does not raise a new issue because the polynucleotide and polypeptide sequences disclosed in Table 1, as SEQ ID Nos: 1 and 2, were also available in the library deposited as ATCC Deposit No. 97755, or from DNA isolated from the same organism, such as the *S. pneumoniae* strain deposited with the ATCC as Deposit No. 55840. Both ATCC Deposit No. 97755 and ATCC Deposit No. 55840 are discussed in the instant specification at page 42, lines 1 to 4.

The sequences of the non-elected species are not required to support the elected claims under 35 U.S.C. §§ 101 and 112. Applicants point out that, as disclosed in the specification, a polynucleotide sequence corresponding to a single *Streptococcus pneumoniae* ORF can be used, for example, as a diagnostic probe to detect *Streptococcus pneumoniae* in a sample (see, e.g., page 46, lines 17-32). Applicants submit that on the priority date of the instant application, the skilled molecular biologist, enlightened by the teaching of the amended specification (i.e., the disclosure of the specification pending upon entry of the instant amendment) was more than capable of routinely generating the claimed polynucleotides and using the polynucleotides to express polypeptides, diagnose the presence of polynucleotides that hybridize to the claimed polynucleotides and to use the polypeptides of the invention to attenuate a *Streptococcus* infection. Further, amending the specification to delete text relating to the non-elected species and to cancel all sequence listings relating to the non-elected species, does not increase the scope of the claimed polynucleotides when compared to that prior to amending the specification.<sup>1</sup> Further, deletion of disclosure relating to the non-claimed sequences does not constitute new matter.

---

### ***Conclusion***

Applicants respectfully request that the amendments and remarks of the present response be entered and made of record in the present application. Early notice to that effect

---

<sup>1</sup> Applicants additionally point out that the publication and/or release of Applicants' proprietary information concerning the non-elected subject matter is not commensurate with the rights which would ultimately be granted to Applicants for the elected species.

is earnestly solicited. If, in the opinion of the Examiner, a telephone conference would expedite prosecution, the undersigned can be reached at the telephone number indicated below. If a fee is required in connection with this paper, please charge Deposit Account No. 08-3425 for the appropriate amount.

Respectfully submitted,

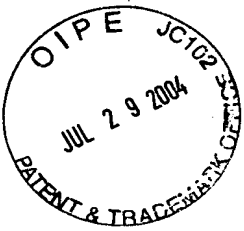
Date: April 27, 2000



Michelle S. Marks (Reg. No. 41,971)  
Attorney for Applicants

**Human Genome Sciences, Inc.**  
9410 Key West Avenue  
Rockville, MD 20850  
(301) 610-5761 (phone)

MSM/CCB



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application of: Choi et al.

Application Number: 08/961,083

Group Art Unit: 1641

Filed: October 30, 1997

Examiner: Hines, J.

Title: *Streptococcus pneumoniae* Antigens  
And Vaccines

Attny. Docket No.: PB340P2

**STATEMENT UNDER 37 C.F.R. 1.821 and 1.825**

Assistant Commissioner For Patents  
Washington, D.C. 20231

Sir:

Applicants hereby certify under 37 C.F.R. §§1.821(f) and 1.825(b) that the paper copy of the Substitute Sequence Listing, and the computer readable form of the Substitute Sequence Listing submitted herewith, are the same.

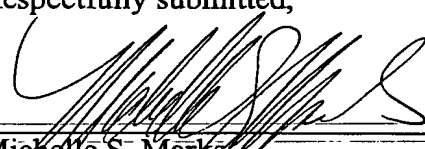
Moreover, applicants hereby certify under 37 C.F.R. §§1.821(g) and 1.825(a) the Substitute Sequence Listing contains no new matter.

No fee is believed due in connection with this submission. However, should a fee be required, the Assistant Commissioner is hereby authorized to charge such fee to Deposit Account No. 08-3425. A duplicate of this sheet is enclosed.

Respectfully submitted,

Date

*April 27, 2000*

  
Michelle S. Marks  
Attorney for Applicants

(Reg. No. 41,971)

**Human Genome Sciences, Inc.**  
9410 Key West Avenue  
Rockville, MD 20850  
(301) 610-5761 (phone)

MDS/CB/mbp





## SEQUENCE LISTING

## (1) GENERAL INFORMATION:

- (i) APPLICANT: Choi et. al.
- (ii) TITLE OF INVENTION: Streptococcus pneumoniae Antigens and Vaccines
- (iii) NUMBER OF SEQUENCES: 4
- (iv) CORRESPONDENCE ADDRESS:
  - (A) ADDRESSEE: Human Genome Sciences, Inc.
  - (B) STREET: 9410 Key West Avenue
  - (C) CITY: Rockville
  - (D) STATE: Maryland
  - (E) COUNTRY: USA
  - (F) ZIP: 20850
- (v) COMPUTER READABLE FORM:
  - (A) MEDIUM TYPE: Diskette, 3.50 inch, 1.4Mb storage
  - (B) COMPUTER: HP Vectra 486/33
  - (C) OPERATING SYSTEM: MSDOS version 6.2
  - (D) SOFTWARE: ASCII Text
- (vi) CURRENT APPLICATION DATA:
  - (A) APPLICATION NUMBER: 08/961,083
  - (B) FILING DATE: OCT-30-1997
  - (C) CLASSIFICATION:
- (vii) PRIOR APPLICATION DATA:
  - (A) APPLICATION NUMBER: 60/029,960
  - (B) FILING DATE: OCT-31-1996
- (viii) ATTORNEY/AGENT INFORMATION:
  - (A) NAME: Michelle S. Marks
  - (B) REGISTRATION NUMBER: 41,971
  - (C) REFERENCE/DOCKET NUMBER: PB340P2

---

~~(vi) TELECOMMUNICATION INFORMATION:~~

---

- ~~(A) TELEPHONE: (301) 309-8504~~
  - ~~(B) TELEFAX: (301) 309-8512~~
- 

## (2) INFORMATION FOR SEQ ID NO: 1:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 2389 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

TTCTTACGAG	TTGGGACTGT	ATCAAGCTAG	AACGGTTAAG	GAAAATAATC	GTGTTTCCTA	60
TATAGATGGA	AAACAAGCGA	CGCAAAAAAC	GGAGAATTTG	ACTCCTGATG	AGGTTAGCAA	120
GCGTGAAGGA	ATCAATGCTG	AGCAAATCGT	CATCAAGATA	ACAGACCAAG	GCTATGTCAC	180
TTCACATGGC	GACCACTATC	ATTATTACAA	TGGTAAGGTT	CCTTATGACG	CTATCATCAG	240
TGAAGAATTA	CTCATGAAAG	ATCCAAACTA	TAAGCTAAAA	GATGAGGATA	TTGTTAATGA	300
GGTCAAGGGT	GGATATGTTA	TCAAGGTAGA	TGGAAAATAC	TATGTTTACC	TTAAGGATGC	360
TGCCCACGCG	GATAACGTCC	GTACAAAAGA	GGAAATCAAT	CGACAAAAAC	AAGAGCATAG	420
TCAACATCGT	GAAGGTGGAA	CTCCAAGAAA	CGATGGTGCT	GTTGCCTTGG	CACGTTTCGA	480
AGGACGCTAT	ACTACAGATG	ATGGTTATAT	CTTTAATGCT	TCTGATATCA	TAGAGGATAC	540
TGGTGATGCT	TATATCGTTC	CTCATGGAGA	TCATTACCAT	TACATTCCTA	AGAATGAGTT	600
ATCAGCTAGC	GAGTTGGCTG	CTGCAGAAAG	CTTCCTATCT	GGTCGAGGAA	ATCTGTCAAA	660
TTCAAGAACC	TATCGCCGAC	AAAATAGCGA	TAACACTTCA	AGAACAAACT	GGGTACCTTC	720
TGTAAGCAAT	CCAGGAACTA	CAAATACTAA	CACAAGCAAC	AACAGCAACA	CTAACAGTCA	780
AGCAAGTCAA	AGTAATGACA	TTGATAGTCT	CTTGAAACAG	CTCTACAAAC	TGCCTTTGAG	840
TCAACGACAT	GTAGAATCTG	ATGGCCTTGT	CTTTGATCCA	GCACAAATCA	CAAGTCGAAC	900
AGCTAGAGGT	GTTGCAGTGC	CACACGGAGA	TCATTACCAC	TTCATCCCTT	ACTCTCAAAT	960
GTCTGAATTG	GAAGAACGAA	TCGCTCGTAT	TATTCCCCTT	CGTTATCGTT	CAAACCATTG	1020
GGTACCAGAT	TCAAGGCCAG	AACAACCAAG	TCCACAACCG	ACTCCGGAAC	CTAGTCCAGG	1080
CCCGCAACCT	GCACCAAATC	TTAAAATAGA	CTCAAATTCT	TCTTTGGTTA	GTCAGCTGGT	1140
ACGAAAAGTT	GGGGAAGGAT	ATGTATTCTGA	AGAAAAGGGC	ATCTCTCGTT	ATGTCTTTGC	1200
GAAAGATTTA	CCATCTGAAA	CTGTTAAAAA	TCTTGAAAGC	AAGTTATCAA	AACAAGAGAG	1260
TGTTTTCACAC	ACTTTAACTG	CTAAAAAAGA	AAATGTTGCT	CCTCGTGACC	AAGAATTTTA	1320
TGATAAAGCA	TATAATCTGT	TAAGTGGAGC	TCATAAAGCC	TTGTTTGNA	ATAAGGGTCG	1380
TAATTCTGAT	TTCCAAGCCT	TAGACAAATT	ATTAGAACGC	TTGAATGATG	AATCGACTAA	1440
TAAAGAAAAA	TTGGTAGATG	ATTTATTGGC	ATTCCTAGCA	CCAATTACCC	ATCCAGAGCG	1500
ACTTGGCAAA	CCAAATTCTC	AAATTGAGTA	TACTGAAGAC	GAAGTTCGTA	TTGCTCAATT	1560
AGCTGATAAG	TATACAACGT	CAGATGGTTA	CATTTTTGAT	GAACATGATA	TAATCAGTGA	1620
TGAAGGAGAT	GCATATGTAA	CGCCTCATAT	GGGCCATAGT	CACTGGATTG	GAAAAGATAG	1680
CCTTTCTGAT	AAGGAAAAAG	TTGCAGCTCA	AGCCTATACT	AAAGAAAAAG	GTATCCTACC	1740
TCCATCTCCA	GACGCAGATG	TTAAAGCAAA	TCCAAGTGG	GATAGTGCAG	CAGCTATTTA	1800
CAATCGTGTG	AAAGGGGAAA	AACGAATTCC	ACTCGTTCGA	CTCCATATA	TGGTTGAGCA	1860
TACAGTTGAG	GTAAAAACG	GTAATTTGAT	TATTCCTCAT	AAGGATCATT	ACCATAATAT	1920

```

TAAATTTGCT TGGTTTGATG ATCACACATA CAAAGCTCCA AATGGCTATA CCTTGAAGA      1980
TTTGTTTGCG ACGATTAAGT ACTACGTAGA ACACCCTGAC GAACGTCCAC ATTCTAATGA      2040
TGGATGGGGC AATGCCAGTG AGCATGTGTT AGGCAAGAAA GACCACAGTG AAGATCCAAA      2100
TAAGAACTTC AAAGCGGATG AAGAGCCAGT AGAGGAAACA CCTGCTGAGC CAGAAGTCCC      2160
TCAAGTAGAG ACTGAAAAAG TAGAAGCCCA ACTCAAAGAA GCAGAAGTTT TGCTTGCGAA      2220
AGTAACGGAT TCTAGTCTGA AAGCCAATGC AACAGAAACT CTAGCTGGTT TACGAAATAA      2280
TTTGACTCTT CAAATTATGG ATAACAATAG TATCATGGCA GAAGCAGAAA AATTACTTGC      2340
GTTGTAAAAA GGAAGTAATC CTTCATCTGT AAGTAAGGAA AAAATAAAC      2389

```

(2) INFORMATION FOR SEQ ID NO: 2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 796 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

```

Ser Tyr Glu Leu Gly Leu Tyr Gln Ala Arg Thr Val Lys Glu Asn Asn
1           5           10           15

Arg Val Ser Tyr Ile Asp Gly Lys Gln Ala Thr Gln Lys Thr Glu Asn
20          25          30

Leu Thr Pro Asp Glu Val Ser Lys Arg Glu Gly Ile Asn Ala Glu Gln
35          40          45

Ile Val Ile Lys Ile Thr Asp Gln Gly Tyr Val Thr Ser His Gly Asp
50          55          60

His Tyr His Tyr Tyr Asn Gly Lys Val Pro Tyr Asp Ala Ile Ile Ser
65          70          75          80

Glu Glu Leu Leu Met Lys Asp Pro Asn Tyr Lys Leu Lys Asp Glu Asp
85          90          95

-----
Ile Val Asn Glu Val Lys Gly Gly Tyr Val Ile Lys Val Asp Gly Lys
100         105         110

-----
Tyr Tyr Val Tyr Leu Lys Asp Ala Ala His Ala Asp Asn Val Arg Thr
115         120         125

Lys Glu Glu Ile Asn Arg Gln Lys Gln Glu His Ser Gln His Arg Glu
130         135         140

Gly Gly Thr Pro Arg Asn Asp Gly Ala Val Ala Leu Ala Arg Ser Gln
145         150         155         160

Gly Arg Tyr Thr Thr Asp Asp Gly Tyr Ile Phe Asn Ala Ser Asp Ile
165         170         175

```



Asp	Glu	Val	Arg	Ile	Ala	Gln	Leu	Ala	Asp	Lys	Tyr	Thr	Thr	Ser	Asp	515	520	525
Gly	Tyr	Ile	Phe	Asp	Glu	His	Asp	Ile	Ile	Ser	Asp	Glu	Gly	Asp	Ala	530	535	540
Tyr	Val	Thr	Pro	His	Met	Gly	His	Ser	His	Trp	Ile	Gly	Lys	Asp	Ser	545	550	555
Leu	Ser	Asp	Lys	Glu	Lys	Val	Ala	Ala	Gln	Ala	Tyr	Thr	Lys	Glu	Lys	565	570	575
Gly	Ile	Leu	Pro	Pro	Ser	Pro	Asp	Ala	Asp	Val	Lys	Ala	Asn	Pro	Thr	580	585	590
Gly	Asp	Ser	Ala	Ala	Ala	Ile	Tyr	Asn	Arg	Val	Lys	Gly	Glu	Lys	Arg	595	600	605
Ile	Pro	Leu	Val	Arg	Leu	Pro	Tyr	Met	Val	Glu	His	Thr	Val	Glu	Val	610	615	620
Lys	Asn	Gly	Asn	Leu	Ile	Ile	Pro	His	Lys	Asp	His	Tyr	His	Asn	Ile	625	630	635
Lys	Phe	Ala	Trp	Phe	Asp	Asp	His	Thr	Tyr	Lys	Ala	Pro	Asn	Gly	Tyr	645	650	655
Thr	Leu	Glu	Asp	Leu	Phe	Ala	Thr	Ile	Lys	Tyr	Tyr	Val	Glu	His	Pro	660	665	670
Asp	Glu	Arg	Pro	His	Ser	Asn	Asp	Gly	Trp	Gly	Asn	Ala	Ser	Glu	His	675	680	685
Val	Leu	Gly	Lys	Lys	Asp	His	Ser	Glu	Asp	Pro	Asn	Lys	Asn	Phe	Lys	690	695	700
Ala	Asp	Glu	Glu	Pro	Val	Glu	Glu	Thr	Pro	Ala	Glu	Pro	Glu	Val	Pro	705	710	715
Gln	Val	Glu	Thr	Glu	Lys	Val	Glu	Ala	Gln	Leu	Lys	Glu	Ala	Glu	Val	725	730	735
Leu	Leu	Ala	Lys	Val	Thr	Asp	Ser	Ser	Leu	Lys	Ala	Asn	Ala	Thr	Glu	740	745	750
Thr	Leu	Ala	Gly	Leu	Arg	Asn	Asn	Leu	Thr	Leu	Gln	Ile	Met	Asp	Asn	755	760	765
Asn	Ser	Ile	Met	Ala	Glu	Ala	Glu	Lys	Leu	Leu	Ala	Leu	Leu	Lys	Gly	770	775	780
Ser	Asn	Pro	Ser	Ser	Val	Ser	Lys	Glu	Lys	Ile	Asn					785	790	795

## (2) INFORMATION FOR SEQ ID NO: 3:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 37 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

AGTCGGATCC TTCTTACGAG TTGGGACTGT ATCAAGC

37

(2) INFORMATION FOR SEQ ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 40 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

AGTCAAGCTT GTTTATTTTT TCCTTACTTA CAGATGAAGG

40

---

---

---

# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Choi et al.

Application Serial No.: 08/961,083

Art Unit: 1641

Filed: October 30, 1997

Examiner: Hines, J.

For: Streptococcus Pneumoniae Antigens  
and Vaccines

Attorney Docket No.: PB340P2

## FEE TRANSMITTAL SHEET

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

The fee required to be filed with the accompanying amendment of even date herewith concerning the above-identified application has been estimated to be \$0.00.

The claim amendment fee has been estimated as shown below:

(Col. 1)		(Col. 2)		(Col. 3)		SMALL ENTITY		OTHER THAN A SMALL ENTITY	
Claims Remaining After Amendment			Highest No. Previously Paid For	Present Extra	Rate	Add. Fee	or	Rate	Add. Fee
Total	73	Minus	181	=	-	X9	\$ **	X18	\$00
Indep	13	Minus	13	=	-	X39	\$ **	X78	\$00
First Presentation of Multiple Dep. Claims				+ 135		\$ **		+ 270	\$ **
Total						\$ **		or	Total \$0.00

Please charge the required fee, and any other fee deemed necessary, to Deposit Account No. 08-3425. A duplicate of this sheet is enclosed.

Respectfully submitted,

Date:

*April 27, 2000*

Michelle S. Marks  
Attorney for Applicants

(Reg. No. 41,971)

**Human Genome Sciences, Inc.**  
9410 Key West Avenue  
Rockville, MD 20850  
(301) 610-5771 (phone)

MSM/mbp

## PART B—ISSUE FEE TRANSMITTAL

Complete and mail this form, together with applicable fees, to: **Box ISSUE FEE**  
**Assistant Commissioner for Patent**  
**Washington, D.C. 20231**

**MAILING INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE. Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Issue Fee receipt, the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

Note: The certificate of mailing below can only be used for domestic mailings of the Issue Fee Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing.

## Certificate of Mailing

I hereby certify that this Issue Fee Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
-----------------	-------------	--------------	-----------------------------	-------------

First Named Applicant

TITLE OF INVENTION

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
1					\$121.00	05/01/00

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO form(s) and Customer Number are recommended, but not required.

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" indication form PTO/SB/47) attached.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1. Human Genome Sciences Inc.

2. \_\_\_\_\_

3. \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)  
**PLEASE NOTE:** Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the PTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE Human Genome Sciences, Inc.

(B) RESIDENCE: (CITY & STATE OR COUNTRY) Rockville, MD

4a. The following fees are enclosed (make check payable to Commissioner of Patents and Trademarks):

☐ Issue Fee

☐ Advance Order - # of Copies \_\_\_\_\_

4b. The following fees or deficiency in these fees should be charged to:  
 DEPOSIT ACCOUNT NUMBER 08-3425  
 (ENCLOSE AN EXTRA COPY OF THIS FORM)

☒ Issue Fee

☒ Advance Order - # of Copies 5

Please check the appropriate assignee category indicated below (will not be printed on the patent)

☐ individual ☒ corporation or other private group entity ☐ government

The COMMISSIONER OF PATENTS AND TRADEMARKS IS requested to apply the Issue Fee to the application identified above.

(Authorized Signature) Michelle S. Marks (Reg. 41,971) (Date) 2/27/2000

NOTE: The Issue Fee will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the Patent and Trademark Office.

**Burden Hour Statement:** This form is estimated to take 0.2 hours to complete. Time will vary depending on the needs of the individual case. Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND FEES AND THIS FORM TO: Box Issue Fee, Assistant Commissioner for Patents, Washington D.C. 20231

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**RECEIVED**

FEB 4 2000

HGS PATENT DEPT.

TRANSMIT THIS FORM WITH FEE





**HUMAN GENOME SCIENCES  
LEGAL DEPARTMENT**

**9410 Key West Avenue  
Rockville, MD 20850**

**Phone: 301-309-8504**

**Fax: 301-309-8439**

**FAX COVER SHEET**

Date: December 11, 2000

Number of pages, including cover: 23

To: Marianne Morgan  
Office of the Petitioner  
U.S. Patent and Trademark Office

Fax: 703-308-6916

Phone:

From: Kenley K. Hoover

Re: U.S. Patent Application No. 08/961,083

HGS Ref.: PB340P2

If you experience any difficulty receiving this transmission,  
please contact Brenda Allen at 301-340-3459.

The information contained in this facsimile message is information protected by attorney-client and/or the attorney/work product privilege. It is intended only for the use of the individual named above and the privileges are not waived by virtue of this having been sent by facsimile. If the person actually receiving this facsimile or any other reader of the facsimile is not the named recipient or the employee or agent responsible to deliver it to the named recipient, any use, dissemination, distribution or copying of the

**CONTINUED PROSECUTION APPLICATION (CPA)  
REQUEST TRANSMITTAL**

Submit an original, and a duplicate for fee processing. CHECK BOX if applicable:  
(Only for Continuation or Divisional applications under 37 CFR 1.53(d)) ☐ **DUPLICATE**

Address to:  
Assistant Commissioner for Patents  
Box CPA  
Washington, DC 20231

Attorney Docket No.  
of prior application

PB340P2

First Named Inventor

Choi et al.

Examiner Name

Hines, J.

Group/Art Unit

1641

Express Mail Label No.

This is a request for a ☒ continuation or ☐ divisional application under 37 CFR § 1.53(d),  
(continued prosecution application (CPA)) of the prior application number 08/961,083,  
filed on 10/30/97 entitled: Streptococcus pneumoniae Antigens and Vaccines.

**NOTES**

**FILING QUALIFICATIONS:** The prior application identified above must be a nonprovisional application that is either: (1) complete as defined by 37 CFR § 1.51(b) or (2) the national stage of an international application in compliance with 35 U.S.C. 371. Effective May 29, 2000, a CPA may only be filed in a utility or a plant application if the prior nonprovisional application was filed before May 29, 2000. A CPA may be filed in a design application regardless of the filing date of the prior application. See "Request for Continued Examination Practice Changes to and Provisional Application Practice," Final Rule, 65 Fed. Reg. 50092 (Aug 16, 2000); Interim Rule, 65 Fed. Reg. 14865 (Mar. 20, 2000), 1233 Off. Gaz. Pat. Office (Apr. 11, 2000).

**C-I-P NOT PERMITTED:** A continuation-in-part application cannot be filed as a CPA under 37 CFR § 1.53(d), but must be filed under 37 CFR § 1.53(h).

**EXPRESS ABANDONMENT OF PRIOR APPLICATION:** The filing of this CPA is a request to expressly abandon the prior application as of the filing date of the request for a CPA. 37 CFR § 1.53(h) must be used to file a continuation, divisional, or continuation-in-part of an application that is not to be abandoned.

**ACCESS TO PRIOR APPLICATION:** The filing of this CPA will be construed to include a waiver of confidentiality by the application under 35 U.S.C. 122 to the extent that any member of the public who is entitled under the provisions of 37 CFR § 1.14 to access to, copies of, or information concerning, the prior application may be given similar access to, copies of, or similar information concerning, the other application or applications in the file jacket.

**35 U.S.C. 120 STATEMENT:** In a CPA, no reference to the prior application is needed in the first sentence of the specification and none should be submitted. If a sentence referencing the prior application is submitted, it will not be entered. A request for a CPA is the specific reference required by 35 U.S.C. 120 and to every application assigned the application number identified in such request, 37 CFR § 1.78(a).

**Warning: Information on this form may become public. Credit Card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

1. ☒ Enter the unentered amendment previously filed on April 27, 2000 under 37 CFR § 1.312 in the prior nonprovisional application.
2. ☐ A preliminary amendment is enclosed.
3. ☐ This application is filed by fewer than all the inventors named in the prior application, 37 CFR § 1.53(d)(4).
  - a. ☐ DELETE the following inventor(s) named in the prior nonprovisional application:  
.....
  - b. ☐ The inventor(s) to be deleted are set forth in a separate sheet attached hereto.
4. ☐ A new power of attorney or authorization of agent (PTO/SB/81) is enclosed.
5. ☐ Information Disclosure Statement (IDS) is enclosed:
  - a. ☐ PTO/SB/08
  - b. ☐ Copies of IDS citations

CLAIMS	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
	TOTAL CLAIMS 73 (37 CFR § 1.16(c) or (j))	-20* =	53	x \$ 18.00 =	\$ 954.00
	INDEPENDENT CLAIMS 2 (37 CFR § 1.16(b) or (i))	-3** =	0	x \$ 80.00 =	0.00
	MULTIPLE DEPENDENT CLAIMS (if applicable) (37 CFR § 1.16(d))			x \$ 270.00 =	
				BASIC FEE (37 CFR § 1.16)	\$ 710.00
				Total of above Calculations =	\$1,664.00
	Reduction by 50% for filing by small entity (Note 37 CFR 1.27).				
	* Reissue claims in excess of 20 and over original patent. **Reissue independent claims over original patent.			TOTAL =	\$1,664.00

6. ☐ Small entity status: Applicant claims small entity status. See 37 CFR 1.27.
7. ☒ The Commissioner is hereby authorized to credit overpayments or charge the following fees to Deposit Account No. **08-3425**.
- a. ☒ Fees required under 37 CFR § 1.16.
- b. ☒ Fees required under 37 CFR § 1.17.
- c. ☐ Fees required under 37 CFR § 1.18.
8. ☐ A check in the amount of \$\_\_\_\_\_ is enclosed.
9. ☐ Payment by credit card. Form PTO-2038 is enclosed.
10. ☐ Applicant requests suspension of action under 37 CFR 1.103(b) (fee under 37 CFR 1.17(i) enclosed).
11. ☐ New Attorney Docket Number, if desired \_\_\_\_\_  
[Prior application Attorney Docket Number will carryover to this CPA unless a new Attorney Docket Number has been provided herein.]
12. a. ☐ Receipt For Facsimile Transmitted CPA (PTO/SB/29A)
- b. ☐ Return Receipt Postcard (Should be specifically itemized, See MPEP 503)
13. ☒ Other: Fee Transmittal Sheet  
Petition to Withdraw Application From Issue Under 37 C.F.R. § 1.313(b)(5)

**NOTE:** The prior application's correspondence address will carry over to this CPA UNLESS a new correspondence address is provided below.

#### 14. NEW CORRESPONDENCE ADDRESS

☒ Customer Number or Bar Code Label **Customer No. 22195** or ☐ New correspondence address below

Name

Address

City

State

Zip Code

Country

Telephone

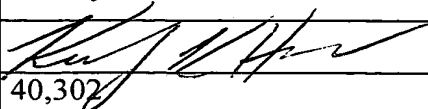
Fax

#### 15. SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Name (Print/Type)

Kenley K. Hoover

Signature



Registration No. (Attorney/Agent)

40,302

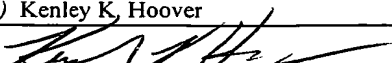
Date

December 11, 2000

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**Patent fees are subject to annual revision.**

**Complete if Known**

FEE TRANSMITTAL for FY 2001				Complete if Known			
Patent fees are subject to annual revision.				Application Number		08/961,083	
				Filing Date		October 30, 1997	
				First Named Inventor		Choi et al.	
				Examiner Name		Hines, J.	
				Group Art Unit		1641	
Total amount of payment		(\$1,794.00)		Attorney Docket Number		PB340P2	
METHOD OF PAYMENT (CHECK ONE)				FEE CALCULATION (CONTINUED)			
1. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge indicated fees and credit any overpayment to: Deposit Account Number 08-3425 Deposit Account Name Human Genome Sciences, Inc.				3. ADDITIONAL FEES			
<input checked="" type="checkbox"/> Charge Any Additional Fee Required Under 37 CFR §§ 1.16 and 1.17							
<input type="checkbox"/> Applicant claims small entity status See 37 CFR 1.27							
2. <input type="checkbox"/> Payment Enclosed: <input type="checkbox"/> Check <input type="checkbox"/> Credit Card <input type="checkbox"/> Money Order <input checked="" type="checkbox"/> Other*							
* Charge any deficiencies or credit any overpayments in the fees or fee calculations of Parts 1, 2 and 3 below to Deposit Account No. 08-3425							
FEE CALCULATION							
1. BASIC FILING FEE							
Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description	Fee Paid		
101	710	201	355	Utility filing fee	\$710		
106	320	206	160	Design filing fee			
107	490	207	245	Plant filing fee			
108	710	208	355	Reissue filing fee			
114	150	214	75	Provisional filing fee			
Subtotal (1)				\$710.00			
2. EXTRA CLAIM FEES							
Total claims		73	- 20**	53	Extra Fee from below \$18.00	Fee Paid \$954.00	
Indep. claims		2	- 3**	0	80.00	\$0.00	
Multiple Dependent						\$	
Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description			
103	18	203	9	Claims in excess of 20			
102	80	202	40	Independent claims in excess of 3			
104	270	204	135	Multiple dependent claim			
108	80	209	40	**Reissue independent claims over original patent			
110	18	210	9	**Reissue claims in excess of 20 and over original patent			
Subtotal (2)				(\$954.00)			
Submitted By				Complete (if applicable)			
Name (Print/Type) Kenley K. Hoover				Registration No.: 40,302		Telephone	301-610-5771
Signature: 						Date	12/11/2000

VIA HAND DELIVERY DECEMBER 11, 2000

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Choi, et al.

**Issue Batch No.: H61**

Application Serial No.: 08/961,083

**Date Allowed: February 1, 2000**

Filed: October 30, 1997

Art Unit: 1641

For: *Streptococcus pneumoniae* Antigens  
and Vaccines

Examiner: Hines, J.

Attorney Docket No.: PB340P2

**PETITION TO WITHDRAW APPLICATION FROM ISSUE**  
**UNDER 37 C.F.R. § 1.313(b)(1)**

Office of Petitions  
Washington, D.C. 20231  
Attn: Marianne Morgan  
Fax No.: 703-308-6916

Sir:

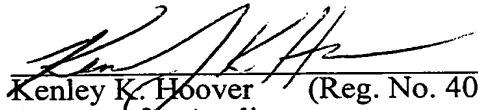
The Issue Fee for the above-identified application was paid on April 27, 2000, and was assigned Issue Batch No. H61. The above-identified application is scheduled to publish as United States Patent Number 6,159,469 on December 12, 2000.

Pursuant to 37 C.F.R. § 1.313(b)(1), Applicants request that the above-identified application be withdrawn from issue for abandonment in order to permit consideration of the amendment to the specification and claims that was filed concurrently with the Issue Fee on April 27, 2000, but disapproved for allegedly being an amendment under 37 C.F.R. § 1.312(b). Applicants submit herewith a copy of the postcard date-stamped by the Patent and Trademark Office on April 27, 2000, the Amendment Under 37 C.F.R. § 1.312, and the Issue Fee Transmittal. These documents evidence that the April 27, 2000 filing of the amendment was not after the date that the issue fee was paid, and accordingly, ~~does not constitute an amendment under 37 C.F.R. § 1.312(b).~~ Applicants additionally submit concurrently herewith a Continued Prosecution Application (CPA) Request Transmittal Under 37 C.F.R. § 1.53(d); and (b) Fee Transmittal.

The fee required with this Petition under 37 C.F.R. § 1.313(b)(1) is estimated to be \$130.00 under 37 C.F.R. § 1.17(i). Please charge the required fee and any other fee deemed necessary to Deposit Account No. 08-3425.

Respectfully submitted,

Date: December 11, 2000

  
Kenley K. Hoover (Reg. No. 40,302)  
Attorney for Applicants

**Human Genome Sciences, Inc.**  
9410 Key West Avenue  
Rockville, MD 20850  
Telephone: (301) 610-5771

Enclosures

**Telecopier Transmission Certificate**

Send date: December 11, 2000

I hereby certify that this paper and the attachments hereto are being sent by telecopier transmission to 703-308-6916 on the above-indicated date addressed to:

**Marianne Morgan - Office of Petitions  
U.S. Patent and Trademark Office  
Washington, D.C. 20231**

  
Name: Brenda Allen

12.11.00  
Date

HUMAN GENOME SCIENCES, INC.

**Please date stamp and return to addressee on reverse side**

Application of: Choi et al.

Application Number: 08/961,083

Filed: October 30, 1997

Title: *Streptococcus pneumoniae* Antigens  
And Vaccines

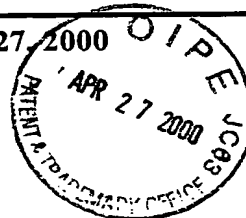
Group Art Unit: 1641

Examiner: Hines, J.

Attny. Docket No.: PB340P2

**Documents Filed Via Hand Delivery on April 27, 2000**

1. Postcard (1)
2. Amendment Under 37 C.F.R. § 1.312
3. Fee Transmittal Sheet, with appropriate fee (in dupl.)
4. Statement under 37 C.F.R. §§ 1.821-1.825
5. Substitute Sequence Listing in paper and computer readable form (6 pages)
6. Issue Fee Transmittal, with appropriate fee (in dupl.)



MSM/CB/mpb

Attn.: Legal Dept.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application of: Choi et al.

Application Number: 08/961,083

Group Art Unit: 1641

Filed: October 30, 1997

Examiner: Hines, J.

Title: *Streptococcus pneumoniae* Antigens  
And Vaccines

Attny. Docket No.: PB340P2

**AMENDMENT UNDER 37 C.F.R. § 1.312**

**BOX: AF**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

In response to the Notice of Allowance dated 01 February 2000 and in accordance with Rule 312 of the Rules of Practice, please consider the following amendments and remarks. Applicants submit concurrently herewith: (a) a Substitute Sequence Listing in paper and computer readable form; (b) a Statement under 37 C.F.R. §§ 1.821-1.825; (c) an Issue Fee Transmittal, with appropriate fee; and (d) a Fee Transmittal Sheet, with appropriate fee.

**Amendments**

**In the title**

---

Please delete the current title and replace therefor -- *Streptococcus pneumoniae* SP036 polynucleotides, polypeptides, antigens and vaccines --.

---

**In the specification**

Please amend the specification as follows:

Page 1, after the title, please insert --This application claims benefit of 35 U.S.C. section 119(e) based on copending U.S. Provisional Application Serial No. 60/029,960, filed



October 31, 1996--

Page 3, lines 17-18, please delete "sequences shown as SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, and so on through SEQ ID NO:226" and replace therefor -- sequence shown as SEQ ID NO:2 --.

Line 21, please delete "any of the amino acid sequences of the polypeptides" and replace therefor --the amino acid sequence of the polypeptide --.

Lines 22-23, please delete "any of the amino acid sequences of the polypeptides" and replace therefor --the amino acid sequence of the polypeptide--.

Page 4, line 5, please delete "any of the polypeptides " and replace therefor --the polypeptide--.

Page 5, line 10, please delete "one or more of the polynucleotides or polypeptides" and replace therefor --the polynucleotide and polypeptide--.

Line 22, please delete "amino acid sequences" and replace therefor --the amino acid sequence--.

Line 23-24, please delete "amino acid sequences" and replace therefor --the amino acid sequence--.

Lines 28-29, please delete ", SEQ ID NO:3, SEQ ID NO:5, and so on through SEQ ID NO:225) which are" and replace therefor -- ) which is --.

Page 7, line 16, please delete "of one or more of the *S. pneumoniae* polypeptides" and replace therefor --the *S. pneumoniae* polypeptide--.

Line 26, please delete "113 open reading frames (ORFs)" and replace therefor --one open reading frame (ORF)--.

---

Line 31, please delete "polypeptides" and replace therefor --polypeptide--.

---

Line 32, please delete "each" and replace therefor --the--.

Line 34, please delete "each" and replace therefor --the--.

Line 36, please delete "SP126" and replace therefor --SP036--.

Line 37, please delete "126" and replace therefor --036--.

Line 38, please delete "SP126" and replace therefor --SP036--.

Page 8, line 1, please delete "SEQ ID NO:223" and replace therefor --SEQ ID NO:1--.

Line 2, please delete "SEQ ID NO:224" and replace therefor --SEQ ID NO:2--.

Lines 8-9, please delete "each of the *S. pneumoniae* polypeptides" and replace therefor --the *S. pneumoniae* polypeptide--.

Line 9, please delete "Each" and replace therefor --The--.

Line 16, please delete " "Lys-1 to Ile-10" of SP001, represents a peptide comprising the lysine at position 1 in SEQ ID NO:2 through and including the isoleucine at position 10 in SEQ ID NO:2, but may include more or fewer residue than those 10" and replace therefor -- "Arg-10 to Arg-17" of SP036, represents a peptide comprising the arginine at position 1 in SEQ ID NO:2 through and including the arginine at position 17 in SEQ ID NO:2, but may include more or fewer residues than those 8.--

Line 24, please delete "each" and replace therefor --the--.

Line 37, please delete "many of the ORFs disclosed herein were" and replace therefor --the ORF disclosed herein was--.

Page 11, line 8, please delete "a number of the disclosed ORFs" and replace therefor -the disclosed ORF--.

Lines 14-16, please delete "polypeptides having the amino acid sequences described in Table 1 and shown as SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, and so on through SEQ ID NO:226, which were" and replace therefor --polypeptide having the amino acid sequence described in Table 1 and shown as SEQ ID NO:2, which was--.

Page 12, lines 30-33, please delete ",SEQ ID NO:3, SEQ ID NO:5, and so on through SEQ ID NO:225; DNA molecules comprising the coding sequences for the polypeptides described in Table 1 and shown as SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, and so on through SEQ ID NO:226;" and replace therefor --;DNA molecules comprising the coding sequences for the polypeptide described in Table 1 and shown as SEQ ID NO:2;--.

Page 13, line 2, please delete "any one of those" and replace therefor --that--.

Line 13, please delete "most, if not all, of a" and replace therefor --the--.

Line 17, please delete "nucleotide sequences identified in Table 1 are provided as

SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, and so on through SEQ ID NO:225,” and replace therefor --nucleotide sequence identified in Table 1 is provided as SEQ ID NO:1,--.

Line 23, please delete “polypeptides” and replace therefor --polypeptide--.

Line 26, please delete “each” and replace therefor --the--.

Line 28, please delete “polypeptides” and replace therefor --polypeptide--.

Page 14, line 11, please delete “most, if not all, of”.

Line 14, please delete “sequences” and replace therefor --sequence--.

Line 24, please delete “SEQ ID NO:3, SEQ ID NO:5, and so on through SEQ ID NO:225,”

Page 15, line 1, please delete “residues” and replace therefor --residue--.

Line 16, please delete “residues” and replace therefor --residue--.

Lines 30-31, please delete “(e.g., another sequence selected from Table 1)”.

Line 34, please delete “polypeptides” and replace therefor --polypeptide--.

Page 16, line 11, please delete “substitution” and replace therefor --substitutions--.

Line 17, please delete “any of the amino acid sequences of the polypeptides” and replace therefor --the amino acid sequence of the polypeptide --.

Line 19, please delete “any of the nucleotide sequences” and replace therefor --the nucleotide sequence--.

Line 36, please delete “some of the nucleic acid sequences” and replace therefor --the nucleic acid sequence--.

Page 17, line 23, please delete “sequences” and replace therefor --sequence--.

---

Line 34, please delete “these nucleotide sequences” and replace therefor --the nucleotide sequence--.

---

Page 21, lines 24-25, please delete “sequences described in Table 1, and shown as SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, and so on through SEQ ID NO:226” and replace therefor --sequence described in Table 1, and shown as SEQ ID NO:2--.

Line 34, please delete “polypeptides” and replace therefor --polypeptide--.

Page 22, line 3, please delete “epitopes for each polypeptide is delineated” and replace therefor --epitopes for the polypeptide are delineated--.

Line 10, please delete “polypeptides” and replace therefor --polypeptide--.

Line 14, please delete “polypeptides” and replace therefor --polypeptide--.

Line 15, please delete “any one of the polypeptides” and replace therefor --the polypeptide--.

Page 23, line 7, please delete “sequences shown in Table 1 may have on” and replace therefor --sequence shown in Table 1 may have one--.

Page 25, line 15, please delete “sequences” and replace therefor --sequence--.

Line 20, please delete “polypeptides” and replace therefor --polypeptide--.

Page 29, line 18, please delete “sequences” and replace therefor --sequence--.

Page 32, line 4, please delete “polypeptides” and replace therefor --polypeptide--.

Page 36, line 26, please delete “more than one of the *S. pneumoniae* polypeptides” and replace therefor --the *S. pneumoniae* polypeptide--.

Line 27, please delete “one or more, for example 2 to 10, of the *S. pneumoniae* polypeptides” and replace therefor --the *S. pneumoniae* polypeptide--.

Line 35, please delete “ofS.” and replace therefor --of *S.* --.

Line 35, please delete “that” and replace therefor --the--.

---

Page 37, line 1, please delete “one or more the *S. pneumoniae* polypeptides” and replace therefor --the *S. pneumoniae* polypeptide--.

---

Line 2, please delete “the *S. pneumoniae* polypeptides” and replace therefor --the *S. pneumoniae* polypeptide--.

Page 41, line 32, please delete “sequences” and replace therefor --sequence--.

Line 41, please delete “polypeptides” and replace therefor --polypeptide--.

Line 37, please delete "polypeptides" and replace therefor --polypeptide--.

Page 42, line 8, please delete "polypeptides" and replace therefor --polypeptide--.

Line 15, please delete "NO:227 through SEQ ID NO:452" and replace therefor --NO:3 thorough SEQ ID NO:4--

Line 20, please delete "sequences" and replace therefor --sequence--.

Page 43, line 4, please delete "4 C" and replace therefor --4°C--.

Line 24, please delete "sequences" and replace therefor --sequence--.

Line 28, please delete "Each of the polynucleotides" and replace therefor --The polynucleotide--.

Lines 30-34, please delete "These pQE10 plasmids containing the DNAs of Table 1, except SP023, SP042, SP054, SP063, SP081, SP092, SP114, SP122, SP123, SP126, and SP127, were deposited with the ATCC as a pooled deposit as a convenience to those of skill in the art. This pooled deposit was desposited on October 16, 1997 and given ATCC Deposit No. 209369. Those of ordinary skill in the art appreciate that isolating an individual plasmid from the pooled deposit is trivial provided the information and reagents described herein. Each of the deposited clones is capable of expressing its encoded *S. pneumoniae* polypeptide."

Page 47, line 18, after "incorporated by reference" please insert --; however, U.S. Provisional Application Serial No. 60/029,960, filed October 31, 1996, is not incorporated by reference.--

Please delete Table 1, Table 2 and Table 3 at pages 48-110 and replace therefor with the following new Tables 1, 2 and 3:

---

Table 1

**SP036 nucleotide (SEQ ID NO:1)**

TTCTTACGAGTTGGGACTGTATCAAGCTAGAACGGTTAAGGAAAATAATCGTGTTTCCTATATAGATGGAAAACA  
 AGCGACGCAAAAAACGGAGAATTTGACTCCTGATGAGGTTAGCAAGCGTGAAGGAATCAATGCTGAGCAAATCGT  
 CATCAAGATAACAGACCAAGGCTATGTCACTTCACATGGCGACCCTATCATTATTACAATGGTAAGGTTCCCTTA  
 TGACGCTATCATCAGTGAAGAATTACTCATGAAAGATCCAAACTATAAGCTAAAAGATGAGGATATTGTTAATGA  
 GGTCAAGGGTGGATATGTTATCAAGGTAGATGGAAAATACTATGTTTACCTTAAGGATGCTGCCCACGCGGATAA  
 CGTCCGTACAAAAGAGGAAATCAATCGACAAAAACAAGAGCATAGTCAACATCGTGAAGGTGGAACCTCAAGAAA  
 CGATGGTGCTGTTGCCCTTGGCACGTTTCGCAAGGACGCTATACTACAGATGATGGTTATATCTTTAATGCTTCTGA  
 TATCATAGAGGATACTGGTGATGCTTATATCGTTCCCTCATGGAGATCATTACCATTACATTCCTAAGAAATGAGTT  
 ATCAGCTAGCGAGTTGGCTGCTGCAGAAGCCTTCCTATCTGGTCGAGGAAATCTGTCAAATTCAGAACCCTATCG  
 CCGACAAAATAGCGATAACACTTCAAGAACAACTGGGTACCTTCTGTAAGCAATCCAGGAACACAAAATACTAA  
 CACAAGCAACAACAGCAACACTAACAGTCAAGCAAGTCAAAGTAATGACATTGATAGTCTCTTGAAACAGCTCTA  
 CAAACTGCCTTTGAGTCAACGACATGTAGAATCTGATGGCCTTGCTTTTGATCCAGCACAAATCACAAGTCGAAC  
 AGCTAGAGGTGTTGCAGTGCCACACGGAGATCATTACCACCTTCATCCCTTACTCTCAAATGCTGTAATTGGAAGA  
 ACGAATCGCTCGTATTATTTCCCTTTCGTTATCGTTCAAACCATTGGGTACCAGATTCAAGGCCAGAACAAACCAAG  
 TCCACAACCGACTCCGGAACCTAGTCCAGGCCCGCAACCTGCACCAAATCTTAAAAATAGACTCAAATTCCTCTTT  
 GGTTAGTCAGCTGGTACGAAAAGTTGGGGAAGGATATGTATTTCGAAGAAAAGGGCATCTCTCGTTATGTCTTTGC  
 GAAAGATTTACCATCTGAAACTGTTAAAAATCTTGAAAGCAAGTTATCAAAACAAGAGAGTGTTCACACACTTT  
 AACTGCTAAAAAAGAAAATGTTGCTCCTCGTGACCAAGAATTTTATGATAAAGCATATAATCTGTTAAGTGAAGGC  
 TCATAAAGCCTTGTTTGNAATAAGGGTCGTAATTCTGATTTCCAAGCCTTAGACAAATTATTAGAAGCCTTGAA  
 TGATGAATCGACTAATAAAGAAAAATTGGTAGATGATTTATTGGCATTCCCTAGCACCAATTACCCATCCAGAGCG  
 ACTTGGCCAAACCAATTCTCAAATTGAGTATACTGAAGACGAAGTTTCGTATTGCTCAATTAGCTGATAAGTATAC  
 AACGTCAGATGGTTACATTTTTGATGAACATGATATAATCAGTGATGAAGGAGATGCATATGTAACGCCCTCATAT  
 GGGCCATAGTCACTGGATTGGAAGATAGCCTTTCTGATAAGGAAAAAGTTGCAGCTCAAGCCTATACTAAAGA  
 AAAAGGTATCCTACCTCCATCTCCAGACGCAGATGTTAAGCAAACTCCAAGTGGAGATAGTGCAGCAGCTATTTA  
 CAATCGTGTGAAGGGGAAAAACGAATTCCACTCGTTGACTTCCATATATGGTTGAGCATACAGTTGAGGTTAA  
 AAACGGTAATTTGATTATTCCTCATAAGGATCATTACCATAATATTAAATTTGCTTGGTTTGATGATCACACATA  
 CAAAGCTCCAAATGGCTATACCTTGGAAGATTTGTTTGCGACGATTAAGTACTACGTAGAACCACCTGACGAACG  
 TCCACATTCTAATGATGGATGGGGCAATGCCAGTGAGCATGTGTTAGGCAAGAAAGACCACAGTGAAGATCCAAA  
 TAAGAAGTTCAAAGCGGATGAAGAGCCAGTAGAGGAAACACCTGCTGAGCCAGAAGTCCCTCAAGTAGAGACTGA  
 AAAAGTAGAAGCCCAACTCAAAGAAGCAGAAGTTTTGCTTGCGAAAGTAACGGATTCTAGTCTGAAAGCCAATGC  
 AACAGAAACTCTAGCTGGTTTACGAAATAATTTGACTCTTCAAATTATGGATAACAATAGTATCATGGCAGAAGC  
 AGAAAAATTACTTGCCTTGTTAAAAGGAAGTAATCCTTCATCTGTAAGTAAGGAAAAAATAAAC

**SP036 amino acid (SEQ ID NO:2)**

SYELGLYQARTVKENNRVSYIDGKQATQKTENLTPDEVSKREGINAEQIVIKITDQGYVTSBGDHYHYNGKVPY  
 DAIISEELLMKDPNYKLKDEDIVNEVKGGYVIKVDGKYVYVLKDAHADNVRTKEEINRQKQEHSHREGGTPRN  
 DGAVALARSQGRYTTDDGYIFNASDIIEDTGDAYIVPHGDHYHYIPKNELSSASELAAAEFLSGRGNLSNSRTRYR  
 RQNSDNTSRTNWVPSVSNPGTTNTNTSNNSTNSQASQSNIDSLKQLYKLPLSQRHVESDGLVFDPAQITSRT  
 ARGVAVPHGDHYHFIPYSOMSELEERIARIIPLYRSNHWVPDSRPEQSPQPTPEPSPGPQPAPNLKIDSSSL  
 VSQLVRKVGEGYVFEKGISRYVFAKDLPSSETVKNLESKLSQESVSHTLTAKKENVAPRDQEFYDKAYNLLTEA  
 HKALFXNKGKNSDFQALDKLLERLNDESTNKEKLVDDLLAFLAPITHPERLGKPNQIEYTEDEVRIAQLADKYT  
 TSDGYIFDEHDIISDEGDAYVTPHMGHSHWIGKDSLSDEKVAQAAYTKEKGILPPSPDADVKANPTGDSAAAIY  
 NRVKGEKRIPLVRLPYMVEHTVEVKNGNLIIPHGDHYHNKFAWFDHNTYKAPNGYTTLEDLFATIKYYVEHPDER  
 PHSNDGWNASEHVLGKKDHSNPNKFNKADEEPVEETPAEPEVPQVETEKVEAQLKEAEVLLAKVTDSSSLKANA  
 TETLAGLRNNLTQLIMDNNSIMAEAEKLLALLKGSNPSSVSKEKIN

**Table 2**  
***S. pneumoniae* Antigenic Epitopes**

**SP036**

Arg-10 to Arg-17; Lys-29 to Ser-39; Ser-140 to Ala-153; Arg-158 to Tyr-169; Asp-175 to Ala-183; Gly-216 to Asn-236; Ala-261 to Leu-270; Arg-282 to Phe-291; and Thr-297 to Ala-305; Pro-342 to Gln-362; Phe-455 to Asp-463; His-497 to Thr-511; Ala-521 to Gly-529; Ile-537 to Val-546; Ile-556 to Ala-568; Pro-581 to Ser-595; Glu-670 to Ala-685; Ser-696 to Ala-705 and Leu-782 to Ser-791

**Table 3**

Primer		<i>S. pneumoniae</i> ORF Cloning Primers	
Name	SEQ ID	Sequence	RE
SP036A	NO: 3	AGTCGGATCCTTCTTACGAGTTGGGACTGTATCAAGC	Bam HI
SP036B	NO: 4	AGTCAAGCTTGTTTATTTTTCCTTACTTACAGATGAAGG	Hind III

Please replace the pages of the Sequence Listing at pages 111-388 of the specification with the Substitute Sequence Listing (6 pages, numbered 1-6) submitted herewith.

Please renumber the pages accordingly.

*In the claims:*

Please amend the claims as follows:

-- 198. (Amended) An isolated nucleic acid molecule comprising a polynucleotide selected from the group consisting of:

(a) a polynucleotide encoding amino acids 1 to 796 of SEQ ID NO:[56]2;

(b) a polynucleotide encoding amino acids 2 to 796 of SEQ ID NO: [56]2;

(c) a polynucleotide encoding an epitope-bearing portion of amino acid residues 1 to 796 of SEQ ID NO: [56]2;

(d) a polynucleotide probe encoding at least 15 contiguous amino acid residues of amino acid residues 1 to 796 of SEQ ID NO: [56]2;

(e) a polynucleotide consisting of at least 50 contiguous nucleotides of nucleotides 1-2389 of SEQ ID NO: [55]1; and

(f) a polynucleotide completely complementary to a polynucleotide in (a), (b), (c), (d), or (e) above.

205. (Amended) The isolated nucleic acid molecule of claim 199, wherein said polynucleotide is SEQ ID NO: [55]1.

206. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Arg-10 to Arg-17 of SEQ ID NO: [56]2.

207. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Lys-29 to Ser-39 of SEQ ID NO: [56]2.

208. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Ser-140 to Ala-153 of SEQ ID NO: [56]2.

209. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Arg-158 to Tyr-169 of SEQ ID NO: [56]2.

210. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Asp-175 to Ala-183 of SEQ ID NO: [56]2.

211. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Gly-216 to Asn-236 of SEQ ID NO: [56]2.

212. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Ala-261 to Leu-270 of SEQ ID NO: [56]2.

---

213. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Arg-282 to Phe-291 of SEQ ID NO: [56]2.

214. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Thr-297 to Ala-305 of SEQ ID NO: [56]2.



215. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Pro-342 to Gln-362 of SEQ ID NO: [56]2.

216. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Phe-455 to Asp-463 of SEQ ID NO: [56]2.

217. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues His-497 to Thr-511 of SEQ ID NO: [56]2.

218. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Ala-521 to Gly-529 of SEQ ID NO: [56]2.

219. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Ile-537 to Val-546 of SEQ ID NO: [56]2.

220. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Ile-556 to Ala-568 of SEQ ID NO: [56]2.

221. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Pro-581 to Ser-595 of SEQ ID NO: [56]2.

222. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Glu-670 to Ala-685 of SEQ ID NO: [56]2.

---

223. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Ser-696 to Ala-705 of SEQ ID NO: [56]2.

---

224. (Amended) The isolated nucleic acid molecule of claim 201, wherein said epitope-bearing portion comprises amino residues Leu-782 to Ser-791 of SEQ ID NO: [56]2.

225. (Amended) The isolated nucleic acid molecule of claim 202, wherein said polynucleotide encodes at least 30 contiguous amino acid residues of amino acid residues 1 to 796 of SEQ ID NO: [56]2.

226. (Amended) The isolated nucleic acid molecule of claim 203, wherein said polynucleotide consists of at least 100 contiguous nucleotides of nucleotides 1-2389 of SEQ ID NO: [55]1.

237. (Amended) An isolated polypeptide comprising a member selected from the group consisting of:

- (a) a polypeptide of amino acid residues 1 to 796 of SEQ ID NO: [56]2;
- (b) a polypeptide of amino acid residues 2 to 796 of SEQ ID NO: [56]2; and
- (c) an epitope-bearing portion of a polypeptide consisting of amino acid residues 1 to 796 of SEQ ID NO: [56]2.

241. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Arg-10 to Arg-17 of SEQ ID NO: [56]2.

242. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Lys-29 to Ser-39 of SEQ ID NO: [56]2.

243. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Ser-140 to Ala-153 of SEQ ID NO: [56]2.

244. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Arg-158 to Tyr-169 of SEQ ID NO: [56]2.

---

245. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Asp-175 to Ala-183 of SEQ ID NO: [56]2.

246. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Gly-216 to Asn-236 of SEQ ID NO: [56]2.

247. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Ala-261 to Leu-270 of SEQ ID NO: [56]2.

248. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Arg-282 to Phe-291 of SEQ ID NO: [56]2.

249. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Thr-297 to Ala-305 of SEQ ID NO: [56]2.

250. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Pro-342 to Gln-362 of SEQ ID NO: [56]2.

251. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Phe-455 to Asp-463 of SEQ ID NO: [56]2.

252. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues His-497 to Thr-511 of SEQ ID NO: [56]2.

253. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Ala-521 to Gly-529 of SEQ ID NO: [56]2.

254. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Ile-537 to Val-546 of SEQ ID NO: [56]2.

---

255. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Ile-556 to Ala-568 of SEQ ID NO: [56]2.

---

256. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Pro-581 to Ser-595 of SEQ ID NO: [56]2.

257. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Glu-670 to Ala-685 of SEQ ID NO: [56]2.

258. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Ser-696 to Ala-705 of SEQ ID NO: [56]2.

259. (Amended) The isolated polypeptide of claim 240, wherein said epitope-bearing portion comprises amino residues Leu-782 to Ser-791 of SEQ ID NO: [56]2.

265. (Amended) The method of claim 17 wherein the polypeptide comprises amino acid residues 1 to 796 of SEQ ID NO:[56]2.

267. (Amended) The method of claim 17 wherein the polypeptide comprises an epitope-bearing portion of amino acid residues 1 to 796 of SEQ ID NO:[56]2.

#### Remarks

Claims 17-18 and 198-268 are allowed.

The title has been amended to more particularly identify the claimed invention.

The specification has been amended to: (a) delete text in the specification relating to the non-elected species and to cancel all sequence listings relating to the non-elected species; (b) recite sequence identifiers associated with the elected polynucleotides and polypeptides throughout the specification and the claims; (c) incorporate the Substitute Sequence Listing pursuant to 37 C.F.R. § 1.821 (c) and (d) renumber the pages of the claims accordingly. The above-mentioned amendments do not constitute new matter under 35 U.S.C. § 112.

---

Applicants submit that entry of the instant amendment does not raise new issues.

---

Particularly, as disclosed in the specification, Applicant's invention is considered to be the sequence corresponding to an individual polynucleotide or fragment of the *Streptococcus Pneumoniae* genome (see, e.g., page 6, lines 16-19), as each polynucleotide fragment or ORF of the genome is separately patentable in its own right. This position is bolstered by the Patent Office's arguments in the record that the non-elected sequences are not related to the claimed invention, as demonstrated by the fact that the Patent Office has restricted and

withdrawn claims directed to non-elected sequences throughout the prosecution of the instant application.

Deletion of the reference to ATCC Deposit No. 209369 does not raise a new issue because the polynucleotide and polypeptide sequences disclosed in Table 1, as SEQ ID Nos: 1 and 2, were also available in the library deposited as ATCC Deposit No. 97755, or from DNA isolated from the same organism, such as the *S. pneumoniae* strain deposited with the ATCC as Deposit No. 55840. Both ATCC Deposit No. 97755 and ATCC Deposit No. 55840 are discussed in the instant specification at page 42, lines 1 to 4.

The sequences of the non-elected species are not required to support the elected claims under 35 U.S.C. §§ 101 and 112. Applicants point out that, as disclosed in the specification, a polynucleotide sequence corresponding to a single *Streptococcus pneumoniae* ORF can be used, for example, as a diagnostic probe to detect *Streptococcus pneumoniae* in a sample (see, e.g., page 46, lines 17-32). Applicants submit that on the priority date of the instant application, the skilled molecular biologist, enlightened by the teaching of the amended specification (i.e., the disclosure of the specification pending upon entry of the instant amendment) was more than capable of routinely generating the claimed polynucleotides and using the polynucleotides to express polypeptides, diagnose the presence of polynucleotides that hybridize to the claimed polynucleotides and to use the polypeptides of the invention to attenuate a *Streptococcus* infection. Further, amending the specification to delete text relating to the non-elected species and to cancel all sequence listings relating to the non-elected species, does not increase the scope of the claimed polynucleotides when compared to that prior to amending the specification.<sup>1</sup> Further, deletion of disclosure relating to the non-claimed sequences does not constitute new matter.

---

### ***Conclusion***

---

Applicants respectfully request that the amendments and remarks of the present response be entered and made of record in the present application. Early notice to that effect

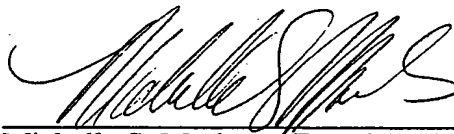
---

<sup>1</sup> Applicants additionally point out that the publication and/or release of Applicants' proprietary information concerning the non-elected subject matter is not commensurate with the rights which would ultimately be granted to Applicants for the elected species.

is earnestly solicited. If, in the opinion of the Examiner, a telephone conference would expedite prosecution, the undersigned can be reached at the telephone number indicated below. If a fee is required in connection with this paper, please charge Deposit Account No. 08-3425 for the appropriate amount.

Respectfully submitted,

Date: April 27, 2000



Michelle S. Marks (Reg. No. 41,971)  
Attorney for Applicants

**Human Genome Sciences, Inc.**  
9410 Key West Avenue  
Rockville, MD 20850  
(301) 610-5761 (phone)

MSM/CCB

---

---

# PART B—ISSUE FEE TRANSMITTAL

Complete and mail this form, together with applicable fees, to: **Box ISSUE FEE**  
**Assistant Commissioner for Patents**  
**Washington, D.C. 20231**

**MAILING INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE. Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Issue Fee Receipt, the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

Note: The certificate of mailing below can only be used for domestic mailings of the Issue Fee Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing.

## Certificate of Mailing

I hereby certify that this Issue Fee Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
-----------------	-------------	--------------	-----------------------------	-------------

				1941 01/01/00
--	--	--	--	---------------

First Named Applicant		0 days.
-----------------------	--	---------

TITLE OF INVENTION: **GENOME ANALYSIS AND PATTERNS**

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
-------------------	----------------	-----------	-------------	--------------	---------	----------

1					\$121.00	05/01/00
---	--	--	--	--	----------	----------

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO form(s) and Customer Number are recommended, but not required.

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47) attached.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

- 1 **Human Genome Sciences, Inc.**
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)  
**PLEASE NOTE:** Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the PTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

**Human Genome Sciences, Inc.**

(A) NAME OF ASSIGNEE

(B) RESIDENCE (CITY & STATE OR COUNTRY) **Rockville, MD**

Please check the appropriate assignee category indicated below (will not be printed on the patent)

- ☐ individual ☒ corporation or other private group entity ☐ government

4a. The following fees are enclosed (make check payable to Commissioner of Patents and Trademarks):

- ☐ Issue Fee
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. The following fees or deficiency in these fees should be charged to:

DEPOSIT ACCOUNT NUMBER **08-3425**  
(ENCLOSE AN EXTRA COPY OF THIS FORM)

- ☒ Issue Fee
- ☒ Advance Order - # of Copies **5**

The COMMISSIONER OF PATENTS AND TRADEMARKS IS requested to apply the Issue Fee to the application identified above.

(Authorized Signature) **Michelle S. Marks** (Reg. 41,971) (Date) **Jan 27, 2000**

NOTE: The Issue Fee will not be accepted from anyone other than the applicant, a registered attorney or agent; or the assignee or other party in interest as shown by the records of the Patent and Trademark Office.

**Burden Hour Statement:** This form is estimated to take 0.2 hours to complete. Time will vary depending on the needs of the individual case. Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND FEES AND THIS FORM TO: Box Issue Fee, Assistant Commissioner for Patents, Washington D.C. 20231

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection



FEB 4 2000

MSM

\*\*\* TRANSMISSION REPORT \*\*\*

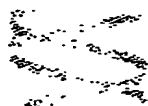
DEC-11-00 14:37 ID:301 309 8439

HGS LEGAL DEPARTMENT

JOB NUMBER 023  
INFORMATION CODE OK  
TELEPHONE NUMBER 17033086916#  
NAME(ID NUMBER) 703 308 6916  
START TIME DEC-11-00 14:29  
PAGES TRANSMITTED 023 TRANSMISSION MODE EMMR  
RESOLUTION STD REDIALING TIMES 00  
SECURITY OFF MAILBOX OFF  
MACHINE ENGAGED 07'28

THIS TRANSMISSION IS COMPLETED.

LAST SUCCESSFUL PAGE 023



**HUMAN GENOME SCIENCES  
LEGAL DEPARTMENT**

9410 Key West Avenue  
Rockville, MD 20850

Phone: 301-309-8504

Fax: 301-309-8439

**FAX COVER SHEET**

Date: December 11, 2000

Number of pages, including cover: 23

To: Marianne Morgan  
Office of the Petitioner  
U.S. Patent and Trademark Office

Fax: 703-308-6916

Phone:

From: Kenley K. Hoover

Re: U.S. Patent Application No. 08/961,083

HGS Ref.: PB340P2

If you experience any difficulty receiving this transmission,  
please contact Brenda Allen at 301-340-3459.

The information contained in this facsimile message is information protected by attorney-client and/or the attorney/work product privilege. It is intended only for the use of the individual named above and no privileges are not waived by virtue of this having been sent by facsimile. If the person actually receiving this facsimile or any other reader of the facsimile is not the named recipient or the employee or agent responsible to deliver it to the named recipient, any use, dissemination, distribution or copying of the communication is strictly prohibited. If you have received this communication in error, please immediately notify us by telephone and return the original message to us at the above address via U.S. Postal Service.





UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents  
United States Patent and Trademark Office  
Washington, D.C. 20231  
www.uspto.gov

RECEIVED

Paper No.

Human Genome Sciences, Inc.  
9410 Key West Avenue  
Rockville, MD 20850



DEC 13 2000  
KKH CB  
HGS PATENT DEPT.

COPY MAILED

DEC 11 2000

OFFICE OF PETITIONS  
A/C PATENTS

In re Application of  
Gil H. Choi, et al.  
Application No. 08/961,083  
Filed: October 30, 1997  
Attorney Docket No. PB340P2

ON PETITION

This is a decision on the petition, filed December 11, 2000, under 37 CFR 1.313(c)(3) to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED**.

The above-identified application is withdrawn from issue in favor of a continued prosecution application (CPA) under 37 CFR 1.53(d).

The application is hereby withdrawn from issue.

**Petitioner is advised that the issue fee paid on April 27, 2000 in the parent application is not refundable nor can it be applied towards any new Notice of Allowance which may issue on the CPA filed December 11, 2000.**

Telephone inquiries should be directed to Marianne Morgan at (703) 306-3475.

The application is being forwarded to Technology Center 1600 for processing of the CPA.

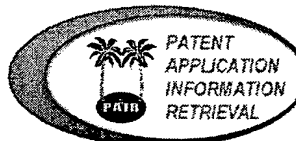
Marianne E. Morgan  
Petitions Examiner  
Office of Petitions  
Office of the Deputy Assistant Commissioner  
for Patent Policy and Projects



United States Patent and Trademark Office

[Home](#) | [Site Index](#) | [Search](#) | [Guides](#) | [Contacts](#) | [eBusiness](#) | [eBiz alerts](#) | [News](#) | [Help](#)

**PATENT APPLICATION INFORMATION RETRIEVAL**



Search results for application number: 08/961,083			
Application Number:	08/961,083	Customer Number:	22195
Filing or 371(c) Date:	10-30-1997	Status:	Allowed – Notice of Allowance Mailed – Issue Revision Completed
Application Type:	Utility	Status Date:	05-20-2004
Examiner Name:	HINES, JANA A	Location:	ELECTRONIC
Group Art Unit:	1645	Location Date:	-
Confirmation Number:	6931	Earliest Publication No:	-
Attorney Docket Number:	PB340P2	Earliest Publication Date:	-
Class/ Sub-Class:	424/165.1	Patent Number:	-
First Named Inventor:	GIL H. CHOI, ROCKVILLE, MD (US)	Issue Date of Patent:	-
Title Of Invention:	STREPTOCOCCUS PNEUMONIAE SP036 POLYNUCLEOTIDES, POLYPEPTIDES, ANTIGENS AND VACCINES		

Search Options

Assignments
Continuity Data
Image File Wrapper
Patent Term Extension History
Publication Review

File History	
Date	Contents Description
07-08-2004	Sequence Forwarded to Pubs on Tape
07-01-2004	Workflow - File Sent to Contractor
05-21-2004	Mail Notice of Allowance
05-19-2004	Issue Revision Completed
05-19-2004	Notice of Allowance Data Verification Completed
05-19-2004	Case Docketed to Examiner in GAU
05-17-2004	Notice of Allowability
04-14-2004	Date Forwarded to Examiner
03-24-2004	Amendment after Final Rejection
01-23-2004	Mail Final Rejection (PTOL - 326)
01-23-2004	Final Rejection
10-15-2003	Date Forwarded to Examiner
09-25-2003	Response after Non-Final Action
07-01-2003	CRF Is Good Technically / Entered into Database

06-25-2003	Mail Non-Final Rejection
06-25-2003	Non-Final Rejection
04-23-2003	Date Forwarded to Examiner
04-07-2003	Response to Election / Restriction Filed
03-06-2003	Mail Restriction Requirement
03-05-2003	Requirement for Restriction / Election
01-09-2003	Date Forwarded to Examiner
12-13-2002	Response to a Letter to Comply with the Sequence Rules
11-14-2002	Mail Letter Requiring CRF (Unreadable, Non-Compliant, Not Submitted)
11-14-2002	CRF Diskette Unreadable / Did Not Comply / Required but Not Submitted
09-18-2002	Date Forwarded to Examiner
09-08-2002	Response after Non-Final Action
08-09-2002	Mail Notice of Informal or Non-Responsive Amendment
12-11-2000	Petition Entered
04-27-2000	Workflow - Request for CPA - Begin
02-05-2002	Date Forwarded to Examiner
04-27-2000	Continuing Prosecution Application - Continuation (ACPA)
02-05-2002	Express Abandonment (for Entry of CPA / RCE / Rule129)
05-12-2000	Workflow - File Sent to Contractor
11-06-2001	Case Docketed to Examiner in GAU
01-24-2001	Petition Flag Set at Petitions Office
01-12-2001	Official Search Conducted
01-12-2001	Case Reported Lost
12-12-2000	Recordation of Patent Grant Mailed
12-11-2000	Sequence Moved to Public Database
11-24-2000	Issue Notification Mailed
04-27-2000	Mailroom Date of Issue Fee Payment
10-24-2000	Mail Response to 312 Amendment (PTO-271)
10-24-2000	Response to Amendment under Rule 312
09-14-2000	Date Forwarded to Examiner
04-27-2000	Amendment after Notice of Allowance (Rule 312)
07-30-2000	Application Is Considered Ready for Issue
04-27-2000	Workflow - Incoming Correspondence - Finish
06-23-2000	Workflow - Query Request - Finish
06-06-2000	Workflow - Query Request - Begin
05-19-2000	Sequence Forwarded to Pubs on Tape
04-27-2000	Workflow - Incoming Correspondence - Begin
02-01-2000	Mail Notice of Allowance
02-01-2000	Notice of Allowance Data Verification Completed
01-31-2000	Notice of Allowability
12-17-1999	Information Disclosure Statement (IDS) Filed
12-17-1999	Rule 47 / 48 Correction of Inventorship Papers Filed
01-13-2000	Date Forwarded to Examiner
12-17-1999	Informal or Non-Responsive Amendment after Examiner Action
12-17-1999	Response after Non-Final Action

12-17-1999	Request for Extension of Time - Granted
06-22-1999	Mail Non-Final Rejection
06-21-1999	Non-Final Rejection
04-30-1999	Information Disclosure Statement (IDS) Filed
04-30-1999	Preliminary Amendment
05-19-1999	Date Forwarded to Examiner
04-30-1999	Response to Election / Restriction Filed
04-30-1999	Request for Extension of Time - Granted
03-03-1999	Mail Restriction Requirement
03-01-1999	Requirement for Restriction / Election
02-08-1999	CRF Is Good Technically / Entered into Database
01-13-1999	Information Disclosure Statement (IDS) Filed
01-25-1999	CRF Disk Has Been Received by Preexam / Group / PCT
01-13-1999	Preliminary Amendment
01-25-1999	Date Forwarded to Examiner
01-13-1999	Response to Election / Restriction Filed
01-13-1999	Request for Extension of Time - Granted
10-26-1998	Mail Supplemental Restriction / Election Requirement
10-26-1998	Supplemental Restriction
09-30-1998	Mail Restriction Requirement
09-30-1998	Requirement for Restriction / Election
09-17-1998	Case Docketed to Examiner in GAU
05-05-1998	Case Docketed to Examiner in GAU
04-25-1998	Application Is Now Complete
12-19-1997	Notice Mailed--Application Incomplete--Filing Date Assigned
12-03-1997	IFW Scan & PACR Auto Security Review
12-19-1997	Preexamination Location Change
11-23-1997	Initial Exam Team nn



**HUMAN GENOME SCIENCES  
LEGAL DEPARTMENT**

**9410 Key West Avenue  
Rockville, MD 20850**

**Phone: 301-309-8504**

**Fax: 301-309-8439**

**FAX COVER SHEET**

DATE: January 18, 2002

TOTAL NUMBER OF PAGES: 34

TO: **Examiner Jana Hines**  
GAU 1645  
United States Patent & Trademark Office

FAX NO.: (703) 308-4242

PHONE NO.: (703) 305-0487

FROM: Mark J. Hyman (Reg. No. 46,789)

RE: Application No. **08/961,083** (Atty. Docket No. PB340P2)

Per your request, enclosed are the last several papers filed in App. No. 08/961,083. What appears to have occurred is that we filed an amendment under 37 CFR 1.312 concurrently with the issue fee on April 27, 2000, but that amendment was (improperly) rejected as filed after payment of the issue fee. In response, we filed a petition to withdraw the case from issue together with a CPA requesting entry of the previous amendment. That petition was granted on December 11, 2000. We have nothing in our file since that date.

---

Please let me know if you need anything more. Thanks for your assistance.

---

If you experience any difficulty receiving this transmission,  
please contact Mark J. Hyman at (240) 314-1224.

The information contained in this facsimile message is information protected by attorney-client and/or the attorney/work product privilege. It is intended only for the use of the individual named above and the privileges are not waived by virtue of this having been sent by facsimile. If the person actually receiving this facsimile or any other reader of the facsimile is not the named recipient or the employee or agent responsible to deliver it to the named recipient, any use, dissemination, distribution or copying of the communication is strictly prohibited. If you have received this communication in error, please immediately notify us by telephone and return the original message to us at the above address via U.S. Postal Service.

## Confirmation Report-Memory Send

Time : Jan-18-02 07:29pm  
Tel line 1 : 3013098504  
Name : HGS PATENT DEPT

Job number : 745  
Date : Jan-18 07:19pm  
To : 17033084242  
Document Pages : 34  
Start time : Jan-18 07:19pm  
End time : Jan-18 07:29pm  
Pages sent : 34  
Job number : 745

\*\*\* SEND SUCCESSFUL \*\*\*



### HUMAN GENOME SCIENCES LEGAL DEPARTMENT

9410 Key West Avenue  
Rockville, MD 20850

Phone: 301-309-8504

Fax: 301-309-8439

### FAX COVER SHEET

DATE: January 18, 2002

TOTAL NUMBER OF PAGES: 34

TO: **Examiner Jana Hines**  
GAU 1645  
United States Patent & Trademark Office

FAX NO.: (703) 308-4242

PHONE NO.: (703) 305-0487

FROM: Mark J. Hyman (Reg. No. 46,789)

RE: Application No. 08/961,083 (Atty. Docket No. PB340P2)

Per your request, enclosed are the last several papers filed in App. No. 08/961,083. What appears to have occurred is that we filed an amendment under 37 CFR 1.312 concurrently with the issue fee on April 27, 2000, but that amendment was (improperly) rejected as filed after payment of the issue fee. In response, we filed a petition to withdraw the case from issue together with a CPA requesting entry of the previous amendment. That petition was granted on December 11, 2000. We have nothing in our file since that date.

Please let me know if you need anything more. Thanks for your assistance

If you experience any difficulty receiving this transmission,  
please contact Mark J. Hyman at (240) 314-1224.

The information contained in this facsimile message is information protected by attorney-client and/or the attorney/work product privilege. It is intended only for the use of the individual named above and the privileges are not waived by virtue of this having been sent by facsimile. If the person actually receiving this facsimile or any other reader of the facsimile is not the named recipient or the employee or agent responsible to deliver it to the named recipient, any use, dissemination, distribution or copying of the communication is strictly prohibited. If you have received this communication in error, please immediately notify us by telephone and return the original message to us at the above address via U.S. Postal Service.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/961,083	10/30/1997	GIL H. CHOI	PB340P2	6931

22195 7590 08/09/2002

HUMAN GENOME SCIENCES INC  
9410 KEY WEST AVENUE  
ROCKVILLE, MD 20850

RECEIVED

EXAMINER

HINES, JANA A

(D) AUG 13 2002  
KKA MOH  
HGS PATENT DEPT

ART UNIT	PAPER NUMBER
----------	--------------

1645

DATE MAILED: 08/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS  
UNITED STATES PATENT AND TRADEMARK OFFICE  
WASHINGTON, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

EXAMINER
----------

ART UNIT	PAPER NUMBER
----------	--------------

DATE MAILED:

### Notice of Non-Compliant Amendment (37 CFR 1.121)

The amendment filed on \_\_\_\_\_ is considered non-compliant because it has not been submitted in the format required under 37 CFR 1.121, as amended on September 8, 2000 (see 65 Fed. Reg. 54603, Sept. 8, 2000, and 1238 O.G. 77, Sept. 19, 2000).

- ☐ 1. The amendment does not include a clean version of the replacement paragraph(s)/section(s). 37 CFR 1.121(b)(1)(ii).
- ☒ 2. The amendment does not include a marked-up version of the replacement paragraph(s)/section(s). 37 CFR 1.121(b)(1)(iii)
- ☐ 3. The amendment does not include a clean version of the amended claim(s). 37 CFR 1.121(c)(1)(i)
- ☒ 4. The amendment does not include a marked-up version of the amended claim(s). 37 CFR 1.121(c)(1)(ii)
- ☐ 5. Other: \_\_\_\_\_
- ☒ **PRELIMINARY AMENDMENT:** Unless applicant re-submits the preliminary amendment in compliance with revised 37 CFR 1.121 within ONE MONTH of the mail date of this letter, examination on the merits may commence without entry of the originally proposed preliminary amendment. This notice is not an action under 35 U.S.C. 132, and this ONE MONTH time limit is not extendable.
- ☐ **AMENDMENT AFTER NON-FINAL ACTION:** Since the above mentioned reply appears to be *bona fide*, applicant is given a TIME PERIOD of ONE (1) MONTH or THIRTY (30) DAYS from the mailing date of this notice, whichever is longer, within which to supply the omission or correction in order to avoid abandonment. EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136(a).

For your convenience, attached to this correspondence is a copy of an informational flyer (MPEP Bookmark Bulletin on "Simplified Amendment Practice").

*Linda Humes*  
Legal Instruments Examiner





**HUMAN GENOME SCIENCES  
LEGAL DEPARTMENT**

**9410 Key West Avenue  
Rockville, MD 20850**

**Phone: 301-309-8504**

**Fax: 301-309-8439**

**FAX COVER SHEET**

DATE: September 9, 2002

TOTAL NUMBER OF PAGES: 3

TO: **Examiner Jana Hines**  
GAU 1645  
United States Patent & Trademark Office

FAX NO.: (703) 308-4242

PHONE NO.: (703) 305-0487

FROM: Mark J. Hyman (Reg. No. 46,789)

RE: Application No. 08/961,083 (Atty. Docket No. PB340P2)

Attached please find the response we discussed by telephone this morning. Please let me know if you need anything more. Thanks for your assistance.

*MJH*

If you experience any difficulty receiving this transmission,  
please contact Mark J. Hyman at (240) 314-1224.

VIA FACSIMILE SEPTEMBER 9, 2002

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Choi et al.

Atty. Docket: PB340P2

Application Serial No.: 08/961,083

Examiner: Hines, J.

Filed: January 3, 1997

Art Unit: 1645

For: *Streptococcus pneumoniae* Antigens and Vaccines

**REPLY TO NOTICE OF NON-COMPLIANT AMENDMENT (37 C.F.R. § 1.121)**

Commissioner for Patents  
Washington, D.C. 20231

Sir:

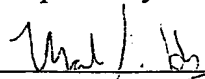
Further to the undersigned's telephone conversation today with the Examiner, Applicants respectfully assert that the response to the Notice of Non-Compliant Amendment (37 C.F.R. § 1.121), dated August 9, 2002, was issued in error by the Office. In particular, the Rule 312 amendment in question was filed April 27, 2000, prior to the effective date of revised Rule 121. However, the amendment was erroneously disapproved by the Office as being submitted after payment of the issue fee, although the issue fee was actually paid on the same date as the amendment. After a successful petition to withdraw the case from issue, a Continuing Prosecution Application (CPA) was filed on December 11, 2000, requesting entry of the previously submitted amendment.

Thus, as discussed with the Examiner, since the amendment was submitted on April 27, 2000, and is in full compliance with the version of Rule 121 effective on that date, the instant Notice has been mailed in error and should be withdrawn. Applicants respectfully request that the amendments and remarks made in the amendment of April 27, 2000, be entered and made of record in the present application.

The Examiner is invited to call the undersigned at the phone number provided below if any further action by Applicants would expedite the examination of this application. No fee is believed due, but if a fee is required in connection with this paper, please charge Deposit Account No. 08-3425 for the appropriate amount.

Respectfully submitted,

Date: September 9, 2002

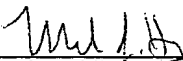
  
Mark J. Hyman (Reg. No. 46,789)  
Attorney for Applicants

**Human Genome Sciences, Inc.**  
9410 Key West Avenue  
Rockville, MD 20850  
(240) 314-1274

CERTIFICATE OF TRANSMISSION UNDER 37 C.F.R. § 1.8

1. Fax Cover Sheet
2. Reply to Notice of Non-Compliant Amendment (37 C.F.R. § 1.121)

I hereby certify that the above-listed correspondence is being facsimile transmitted to the United States Patent and Trademark Office on September 9, 2002.

  
\_\_\_\_\_  
Mark J. Hyman (Reg. No. 46,789)  
Attorney for Applicants

**Human Genome Sciences, Inc.**  
9410 Key West Avenue  
Rockville, MD 20850  
Telephone: (240) 314-1224

# Confirmation Report-Memory Send

Time : Sep-09-02 04:51pm  
Tel line 1 : 3013098439  
Name : HGS PATENT DEPT

Job number : 754  
Date : Sep-09 04:50pm  
To : 7033084242  
Document Pages : 03  
Start time : Sep-09 04:50pm  
End time : Sep-09 04:51pm  
Pages sent : 03

Job number : 754

\*\*\* SEND SUCCESSFUL \*\*\*



## HUMAN GENOME SCIENCES LEGAL DEPARTMENT

9410 Key West Avenue  
Rockville, MD 20850

Phone: 301-309-8504

Fax: 301-309-8439

### FAX COVER SHEET

DATE: September 9, 2002

TOTAL NUMBER OF PAGES: 3

TO: **Examiner Jana Hines**  
GAU 1645  
United States Patent & Trademark Office

FAX NO.: (703) 308-4242

PHONE NO.: (703) 305-0487

FROM: Mark J. Hyman (Reg. No. 46,789)

RE: Application No. 08/961,083 (Att. Docket No. PB340P2)

Attached please find the response we discussed by telephone this morning. Please let me know if you need anything more. Thanks for your assistance.

If you experience any difficulty receiving this transmission,  
please contact Mark J. Hyman at (240) 314-1224.

The information contained in this facsimile message is information protected by attorney-client and/or the attorney/work product privilege. It is intended only for the use of the individual named above and the privileges are not waived by virtue of this having been sent by facsimile. If the person actually receiving this facsimile or any other reader of the facsimile is not the named recipient or the employee or agent responsible to deliver it to the named recipient, any use, dissemination, distribution or copying of the communication is strictly prohibited. If you have received this communication in error, please immediately notify us by telephone and return the original message to us at the above address via U.S. Postal Service.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/961,083	10/30/1997	GIL H. CHOI	PB340P2	6931

22195 7590 11/14/2002

HUMAN GENOME SCIENCES INC  
9410 KEY WEST AVENUE  
ROCKVILLE, MD 20850

RECEIVED

EXAMINER

HINES, JANA A

NOV 18 2002  
RKH MSH

ART UNIT

PAPER NUMBER

1645

HGS PATENT DEPT

DATE MAILED: 11/14/2002

LJH

28

Please find below and/or attached an Office communication concerning this application or proceeding.

UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office  
COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/961,083	10/30/97	Choi et al.	PB340P2

EXAMINER	
J. Hines	
ART UNIT	PAPER NUMBER
1645	28

DATE MAILED:

Please find below a communication from the EXAMINER in charge of this application

Commissioner of Patents

1. This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CAR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CAR 1.821 through 1.825 for the reason(s) set forth on the attached Notice To Comply With Requirements For Patent Applications Containing Nucleotide Sequence And/Or Amino Acid Sequence Disclosures.
2. Applicant is given ONE MONTH, or THIRTY DAYS, whichever is longer, from the mailing date of this letter within which to comply with the sequence rules, 37 CAR 1.821 - 1.825. Failure to comply with these requirements will result in ABANDONMENT of the application under 37 CAR 1.821(g). Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CAR 1.136(a). In no case may an applicant extend the period for reply beyond the SIX MONTH statutory period. Direct the reply to the undersigned. Applicant is requested to return a copy of the attached Notice to Comply with the reply.
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ja-Na Hines whose telephone number is (703) 305-0487. The examiner can normally be reached on Monday-Thursday from 7:30-5:00 pm (Eastern Time) and 7:30-4:00 PM every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynette Smith, can be reached at (703)308-3909. The FAX phone number for group 1600 is (703)308-4242.

An inquiry of a general nature or relating to the status of the application should be directed to the group receptionist whose telephone number is (703)308-0196.

  
LYNETTE R. F. SMITH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1600

**NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE DISCLOSURES**

Applicant must file the items indicated below within the time period set the Office action to which the Notice is attached to avoid abandonment under 35 U.S.C. § 133 (extensions of time may be obtained under the provisions of 37 CFR 1.136(a)).

The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 C.F.R. 1.821 - 1.825 for the following reason(s):

- ☐ 1. This application clearly fails to comply with the requirements of 37 C.F.R. 1.821-1.825. Applicant's attention is directed to the final rulemaking notice published at 55 FR 18230 (May 1, 1990), and 1114 OG 29 (May 15, 1990). If the effective filing date is on or after July 1, 1998, see the final rulemaking notice published at 63 FR 29620 (June 1, 1998) and 1211 OG 82 (June 23, 1998).
- ☐ 2. This application does not contain, as a separate part of the disclosure on paper copy, a "Sequence Listing" as required by 37 C.F.R. 1.821(c).
- ☐ 3. A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 C.F.R. 1.821(e).
- ☐ 4. A copy of the "Sequence Listing" in computer readable form has been submitted. However, the content of the computer readable form does not comply with the requirements of 37 C.F.R. 1.822 and/or 1.823, as indicated on the attached copy of the marked -up "Raw Sequence Listing."
- ☐ 5. The computer readable form that has been filed with this application has been found to be damaged and/or unreadable as indicated on the attached CRF Diskette Problem Report. A Substitute computer readable form must be submitted as required by 37 C.F.R. 1.825(d).
- ☐ 6. The paper copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 C.F.R. 1.821(e).
- ☒ 7. Other: The amendment of April 27, 2000 refers to a submitted CRF for the amended sequences, however no such form has been received by the office; therefore applicant is asked to resubmit the CRF and associated information.

**Applicant Must Provide:**

- ☒ An initial or substitute computer readable form (CRF) copy of the "Sequence Listing".
  - ☒ An initial or substitute paper copy of the "Sequence Listing", as well as an amendment directing its entry into the specification.
- 
- ☒ A statement that the content of the paper and computer readable copies are the same and, where applicable, include no new matter, as required by 37 C.F.R. 1.821(e) or 1.821(f) or 1.821(g) or 1.825(b) or 1.825(d).

For questions regarding compliance to these requirements, please contact:

For Rules Interpretation, call (703) 308-4216

For CRF Submission Help, call (703) 308-4212


PatentIn Software Program Support

Technical Assistance.....703-287-0200

To Purchase PatentIn Software.....703-306-2600

# RETURN RECEIPT CARD

(MPEP § 503)

<b>OIPE:</b>	Please Date Stamp In The Box Below And Return To Addressee
	

Application of:  
Choi et al.

Docket No.: PB340P2

Application Serial No.: 08/961,083

Art Unit: 1645

Filed: October 30, 1997

Examiner: Jana A. Hines

Title: *Streptococcus pneumoniae* Antigens and  
Vaccines

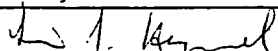
**The following documents were filed by Human Genome Sciences, Inc.  
via hand delivery on December 13, 2002:**

1. Postcard;
2. Fee Transmittal Sheet (in duplicate);
3. Response to Notice to Comply With Sequence Regulations and Statement Under 37 C.F.R. 1.825;
4. Copy of Notice to Comply with Requirements; and
5. Substitute Sequence Listing in paper (6 pages) and computer readable (CRF) (1 disk) forms.

MJH/LJH/rmr



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

<b>FEE TRANSMITTAL for FY 2003</b>				<i>Complete if Known</i>																																																																																																																																																																																															
<i>Patent fees are subject to annual revision.</i>				Application Number	08/961,083																																																																																																																																																																																														
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27				Filing Date	October 30, 1997																																																																																																																																																																																														
<b>TOTAL AMOUNT OF PAYMENT</b> (\$ ) 0.00				First Named Inventor	Gil H. Choi et al.																																																																																																																																																																																														
				Examiner Name	Jana A. Hines																																																																																																																																																																																														
				Group Art Unit	1645																																																																																																																																																																																														
				Attorney Docket No.	PB340P2																																																																																																																																																																																														
<b>METHOD OF PAYMENT</b> (check all that apply)				<b>FEE CALCULATION</b> (continued)																																																																																																																																																																																															
<input type="checkbox"/> Check <input type="checkbox"/> Credit Card <input type="checkbox"/> Money Order <input type="checkbox"/> Other <input type="checkbox"/> None <input type="checkbox"/> Deposit Account Deposit Account Number: 08-3425 Deposit Account Name: Human Genome Sciences, Inc. The Commissioner is hereby authorized to: (check all that apply) <input type="checkbox"/> Charge fee(s) indicated below <input checked="" type="checkbox"/> Credit any overpayments <input checked="" type="checkbox"/> Charge any additional fee(s) during the pendency of this application <input type="checkbox"/> Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.				<b>3. ADDITIONAL FEES</b>																																																																																																																																																																																															
<b>1. BASIC FILING FEE</b>																																																																																																																																																																																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Large Entity</th> <th colspan="2">Small Entity</th> <th rowspan="2">Fee Description</th> <th rowspan="2">Fee Paid</th> </tr> <tr> <th>Fee Code</th> <th>Fee (\$)</th> <th>Fee Code</th> <th>Fee (\$)</th> </tr> </thead> <tbody> <tr> <td>1001</td> <td>740</td> <td>2001</td> <td>370</td> <td>Utility filing fee</td> <td></td> </tr> <tr> <td>1002</td> <td>330</td> <td>2002</td> <td>165</td> <td>Design filing fee</td> <td></td> </tr> <tr> <td>1003</td> <td>510</td> <td>2003</td> <td>255</td> <td>Plant filing fee</td> <td></td> </tr> <tr> <td>1004</td> <td>740</td> <td>2004</td> <td>370</td> <td>Reissue filing fee</td> <td></td> </tr> <tr> <td>1005</td> <td>160</td> <td>2005</td> <td>80</td> <td>Provisional filing fee</td> <td></td> </tr> <tr> <td colspan="4" style="text-align: right;"><b>SUBTOTAL (1)</b></td> <td>(\$ )</td> <td>0.00</td> </tr> </tbody> </table>				Large Entity		Small Entity		Fee Description	Fee Paid	Fee Code	Fee (\$)	Fee Code	Fee (\$)	1001	740	2001	370	Utility filing fee		1002	330	2002	165	Design filing fee		1003	510	2003	255	Plant filing fee		1004	740	2004	370	Reissue filing fee		1005	160	2005	80	Provisional filing fee		<b>SUBTOTAL (1)</b>				(\$ )	0.00																																																																																																																																																		
Large Entity		Small Entity		Fee Description	Fee Paid																																																																																																																																																																																														
Fee Code	Fee (\$)	Fee Code	Fee (\$)																																																																																																																																																																																																
1001	740	2001	370	Utility filing fee																																																																																																																																																																																															
1002	330	2002	165	Design filing fee																																																																																																																																																																																															
1003	510	2003	255	Plant filing fee																																																																																																																																																																																															
1004	740	2004	370	Reissue filing fee																																																																																																																																																																																															
1005	160	2005	80	Provisional filing fee																																																																																																																																																																																															
<b>SUBTOTAL (1)</b>				(\$ )	0.00																																																																																																																																																																																														
<b>2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE</b>																																																																																																																																																																																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th>Extra Claims</th> <th>Fee from below</th> <th>Fee Paid</th> </tr> </thead> <tbody> <tr> <td>Total Claims</td> <td>8</td> <td>-20** =</td> <td></td> <td>0.00</td> </tr> <tr> <td>Independent Claims</td> <td>2</td> <td>-3** =</td> <td></td> <td>0.00</td> </tr> <tr> <td>Multiple Dependent</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						Extra Claims	Fee from below	Fee Paid	Total Claims	8	-20** =		0.00	Independent Claims	2	-3** =		0.00	Multiple Dependent																																																																																																																																																																																
		Extra Claims	Fee from below	Fee Paid																																																																																																																																																																																															
Total Claims	8	-20** =		0.00																																																																																																																																																																																															
Independent Claims	2	-3** =		0.00																																																																																																																																																																																															
Multiple Dependent																																																																																																																																																																																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Large Entity</th> <th colspan="2">Small Entity</th> <th rowspan="2">Fee Description</th> <th rowspan="2">Fee Paid</th> </tr> <tr> <th>Fee Code</th> <th>Fee (\$)</th> <th>Fee Code</th> <th>Fee (\$)</th> </tr> </thead> <tbody> <tr> <td>1202</td> <td>18</td> <td>2202</td> <td>9</td> <td>Claims in excess of 20</td> <td></td> </tr> <tr> <td>1201</td> <td>84</td> <td>2201</td> <td>42</td> <td>Independent claims in excess of 3</td> <td></td> </tr> <tr> <td>1203</td> <td>280</td> <td>2203</td> <td>140</td> <td>Multiple dependent claim, if not paid</td> <td></td> </tr> <tr> <td>1204</td> <td>84</td> <td>2204</td> <td>42</td> <td>** Reissue independent claims over original patent</td> <td></td> </tr> <tr> <td>1205</td> <td>18</td> <td>2205</td> <td>9</td> <td>** Reissue claims in excess of 20 and over original patent</td> <td></td> </tr> <tr> <td colspan="4" style="text-align: right;"><b>SUBTOTAL (2)</b></td> <td>(\$ )</td> <td>0.00</td> </tr> </tbody> </table>				Large Entity		Small Entity		Fee Description	Fee Paid	Fee Code	Fee (\$)	Fee Code	Fee (\$)	1202	18	2202	9	Claims in excess of 20		1201	84	2201	42	Independent claims in excess of 3		1203	280	2203	140	Multiple dependent claim, if not paid		1204	84	2204	42	** Reissue independent claims over original patent		1205	18	2205	9	** Reissue claims in excess of 20 and over original patent		<b>SUBTOTAL (2)</b>				(\$ )	0.00																																																																																																																																																		
Large Entity		Small Entity		Fee Description	Fee Paid																																																																																																																																																																																														
Fee Code	Fee (\$)	Fee Code	Fee (\$)																																																																																																																																																																																																
1202	18	2202	9	Claims in excess of 20																																																																																																																																																																																															
1201	84	2201	42	Independent claims in excess of 3																																																																																																																																																																																															
1203	280	2203	140	Multiple dependent claim, if not paid																																																																																																																																																																																															
1204	84	2204	42	** Reissue independent claims over original patent																																																																																																																																																																																															
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent																																																																																																																																																																																															
<b>SUBTOTAL (2)</b>				(\$ )	0.00																																																																																																																																																																																														
<b>3. ADDITIONAL FEES (continued)</b>																																																																																																																																																																																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Large Entity</th> <th colspan="2">Small Entity</th> <th rowspan="2">Fee Description</th> <th rowspan="2">Fee Paid</th> </tr> <tr> <th>Fee Code</th> <th>Fee (\$)</th> <th>Fee Code</th> <th>Fee (\$)</th> </tr> </thead> <tbody> <tr> <td>1051</td> <td>130</td> <td>2051</td> <td>65</td> <td>Surcharge - late filing fee or oath</td> <td></td> </tr> <tr> <td>1052</td> <td>50</td> <td>2052</td> <td>25</td> <td>Surcharge - late provisional filing fee or cover sheet.</td> <td></td> </tr> <tr> <td>1053</td> <td>130</td> <td>1053</td> <td>130</td> <td>Non-English specification</td> <td></td> </tr> <tr> <td>1812</td> <td>2,520</td> <td>1812</td> <td>2,520</td> <td>For filing a request for <i>ex parte</i> reexamination</td> <td></td> </tr> <tr> <td>1804</td> <td>920*</td> <td>1804</td> <td>920*</td> <td>Requesting publication of SIR prior to Examiner action</td> <td></td> </tr> <tr> <td>1805</td> <td>1,840*</td> <td>1805</td> <td>1,840*</td> <td>Requesting publication of SIR after Examiner action</td> <td></td> </tr> <tr> <td>1251</td> <td>110</td> <td>2251</td> <td>55</td> <td>Extension for reply within first month</td> <td></td> </tr> <tr> <td>1252</td> <td>400</td> <td>2252</td> <td>200</td> <td>Extension for reply within second month</td> <td></td> </tr> <tr> <td>1253</td> <td>920</td> <td>2253</td> <td>460</td> <td>Extension for reply within third month</td> <td></td> </tr> <tr> <td>1254</td> <td>1,440</td> <td>2254</td> <td>720</td> <td>Extension for reply within fourth month</td> <td></td> </tr> <tr> <td>1255</td> <td>1,960</td> <td>2255</td> <td>980</td> <td>Extension for reply within fifth month</td> <td></td> </tr> <tr> <td>1401</td> <td>320</td> <td>2401</td> <td>160</td> <td>Notice of Appeal</td> <td></td> </tr> <tr> <td>1402</td> <td>320</td> <td>2402</td> <td>160</td> <td>Filing a brief in support of an appeal</td> <td></td> </tr> <tr> <td>1403</td> <td>280</td> <td>2403</td> <td>140</td> <td>Request for oral hearing</td> <td></td> </tr> <tr> <td>1451</td> <td>1,510</td> <td>1451</td> <td>1,510</td> <td>Petition to institute a public use proceeding</td> <td></td> </tr> <tr> <td>1452</td> <td>110</td> <td>2452</td> <td>55</td> <td>Petition to revive - unavoidable</td> <td></td> </tr> <tr> <td>1453</td> <td>1,280</td> <td>2453</td> <td>640</td> <td>Petition to revive - unintentional</td> <td></td> </tr> <tr> <td>1501</td> <td>1,280</td> <td>2501</td> <td>640</td> <td>Utility issue fee (or reissue)</td> <td></td> </tr> <tr> <td>1502</td> <td>460</td> <td>2502</td> <td>230</td> <td>Design issue fee</td> <td></td> </tr> <tr> <td>1503</td> <td>620</td> <td>2503</td> <td>310</td> <td>Plant issue fee</td> <td></td> </tr> <tr> <td>1460</td> <td>130</td> <td>1460</td> <td>130</td> <td>Petitions to the Commissioner</td> <td></td> </tr> <tr> <td>1807</td> <td>50</td> <td>1807</td> <td>50</td> <td>Processing fee under 37 CFR 1.17(q)</td> <td></td> </tr> <tr> <td>1806</td> <td>180</td> <td>1806</td> <td>180</td> <td>Submission of Information Disclosure Stmt</td> <td></td> </tr> <tr> <td>8021</td> <td>40</td> <td>8021</td> <td>40</td> <td>Recording each patent assignment per property (times number of properties)</td> <td></td> </tr> <tr> <td>1809</td> <td>740</td> <td>2809</td> <td>370</td> <td>Filing a submission after final rejection (37 CFR 1.129(a))</td> <td></td> </tr> <tr> <td>1810</td> <td>740</td> <td>2810</td> <td>370</td> <td>For each additional invention to be examined (37CFR 1.129(b))</td> <td></td> </tr> <tr> <td>1801</td> <td>740</td> <td>2801</td> <td>370</td> <td>Request for Continued Examination (RCE)</td> <td></td> </tr> <tr> <td>1802</td> <td>900</td> <td>1802</td> <td>900</td> <td>Request for expedited examination of a design application</td> <td></td> </tr> <tr> <td colspan="4" style="text-align: right;"><b>Other fee (specify)</b></td> <td></td> <td></td> </tr> <tr> <td colspan="4" style="text-align: right;"><b>SUBTOTAL (3)</b></td> <td>(\$ )</td> <td>0.00</td> </tr> </tbody> </table>				Large Entity		Small Entity		Fee Description	Fee Paid	Fee Code	Fee (\$)	Fee Code	Fee (\$)	1051	130	2051	65	Surcharge - late filing fee or oath		1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.		1053	130	1053	130	Non-English specification		1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination		1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action		1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action		1251	110	2251	55	Extension for reply within first month		1252	400	2252	200	Extension for reply within second month		1253	920	2253	460	Extension for reply within third month		1254	1,440	2254	720	Extension for reply within fourth month		1255	1,960	2255	980	Extension for reply within fifth month		1401	320	2401	160	Notice of Appeal		1402	320	2402	160	Filing a brief in support of an appeal		1403	280	2403	140	Request for oral hearing		1451	1,510	1451	1,510	Petition to institute a public use proceeding		1452	110	2452	55	Petition to revive - unavoidable		1453	1,280	2453	640	Petition to revive - unintentional		1501	1,280	2501	640	Utility issue fee (or reissue)		1502	460	2502	230	Design issue fee		1503	620	2503	310	Plant issue fee		1460	130	1460	130	Petitions to the Commissioner		1807	50	1807	50	Processing fee under 37 CFR 1.17(q)		1806	180	1806	180	Submission of Information Disclosure Stmt		8021	40	8021	40	Recording each patent assignment per property (times number of properties)		1809	740	2809	370	Filing a submission after final rejection (37 CFR 1.129(a))		1810	740	2810	370	For each additional invention to be examined (37CFR 1.129(b))		1801	740	2801	370	Request for Continued Examination (RCE)		1802	900	1802	900	Request for expedited examination of a design application		<b>Other fee (specify)</b>						<b>SUBTOTAL (3)</b>				(\$ )	0.00		
Large Entity		Small Entity		Fee Description	Fee Paid																																																																																																																																																																																														
Fee Code	Fee (\$)	Fee Code	Fee (\$)																																																																																																																																																																																																
1051	130	2051	65	Surcharge - late filing fee or oath																																																																																																																																																																																															
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.																																																																																																																																																																																															
1053	130	1053	130	Non-English specification																																																																																																																																																																																															
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination																																																																																																																																																																																															
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action																																																																																																																																																																																															
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action																																																																																																																																																																																															
1251	110	2251	55	Extension for reply within first month																																																																																																																																																																																															
1252	400	2252	200	Extension for reply within second month																																																																																																																																																																																															
1253	920	2253	460	Extension for reply within third month																																																																																																																																																																																															
1254	1,440	2254	720	Extension for reply within fourth month																																																																																																																																																																																															
1255	1,960	2255	980	Extension for reply within fifth month																																																																																																																																																																																															
1401	320	2401	160	Notice of Appeal																																																																																																																																																																																															
1402	320	2402	160	Filing a brief in support of an appeal																																																																																																																																																																																															
1403	280	2403	140	Request for oral hearing																																																																																																																																																																																															
1451	1,510	1451	1,510	Petition to institute a public use proceeding																																																																																																																																																																																															
1452	110	2452	55	Petition to revive - unavoidable																																																																																																																																																																																															
1453	1,280	2453	640	Petition to revive - unintentional																																																																																																																																																																																															
1501	1,280	2501	640	Utility issue fee (or reissue)																																																																																																																																																																																															
1502	460	2502	230	Design issue fee																																																																																																																																																																																															
1503	620	2503	310	Plant issue fee																																																																																																																																																																																															
1460	130	1460	130	Petitions to the Commissioner																																																																																																																																																																																															
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)																																																																																																																																																																																															
1806	180	1806	180	Submission of Information Disclosure Stmt																																																																																																																																																																																															
8021	40	8021	40	Recording each patent assignment per property (times number of properties)																																																																																																																																																																																															
1809	740	2809	370	Filing a submission after final rejection (37 CFR 1.129(a))																																																																																																																																																																																															
1810	740	2810	370	For each additional invention to be examined (37CFR 1.129(b))																																																																																																																																																																																															
1801	740	2801	370	Request for Continued Examination (RCE)																																																																																																																																																																																															
1802	900	1802	900	Request for expedited examination of a design application																																																																																																																																																																																															
<b>Other fee (specify)</b>																																																																																																																																																																																																			
<b>SUBTOTAL (3)</b>				(\$ )	0.00																																																																																																																																																																																														
<b>SUBMITTED BY</b>				<i>Complete (if applicable)</i>																																																																																																																																																																																															
Name (Print/Type) Lin J. Hymel				Registration No. (Attorney/Agent)	45,414																																																																																																																																																																																														
Signature 				Telephone	(301) 251-6015																																																																																																																																																																																														
				Date	December 13, 2002																																																																																																																																																																																														

\*\* or number previously paid, if greater; For Reissues, see above

\*Reduced by Basic Filing Fee Paid

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

---

In re Patent Application of:  
Choi et al.

Application No.: 08/961,083

Group Art Unit: 1645

Filed: October 30, 1997

Examiner: Jana A. Hines

For: *Streptococcus pneumoniae* Antigens and  
Vaccines

---

**RESPONSE TO NOTICE TO COMPLY WITH SEQUENCE REGULATIONS AND  
STATEMENT UNDER 37 C.F.R. §1.825**

Commissioner for Patents  
Washington, D.C. 20231

Sir:

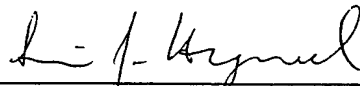
In response to the Notice to Comply mailed November 14, 2002 (Paper No. 28), Applicants submit herewith a Substitute Sequence Listing for the above captioned application. A paper copy and a computer readable form of the original sequence listing, together with a Statement Under 37 C.F.R. 1.821 and 1.825, were submitted with an Amendment on April 27, 2000, but the computer readable form apparently was not received by the Patent and Trademark Office.

Applicants submit herewith a substitute computer readable form and a substitute paper copy of the sequence listing. The sequence listing filed on April 27, 2000 did not describe nucleotide 1368 ("n") of SEQ ID NO:1 or residue 456 ("Xaa") of SEQ ID NO:2, which is corrected in the attached Substitute Sequence Listing. Applicants hereby certify that the content of the paper copy and the computer readable form of the Substitute Sequence Listing submitted

herewith are the same. Applicants further certify that the amendments to the sequence listing are supported by the specification.

Respectfully submitted,

Dated: 13 December 2002

  
\_\_\_\_\_  
Lin J. Hymel (Reg. No. 45,414)  
Attorney for Applicants

**Human Genome Sciences, Inc.**  
9410 Key West Avenue  
Rockville, MD 20850  
(301) 251-6015 (phone)

MJH/LJH/rmr

**NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE DISCLOSURES**

Applicant must file the items indicated below within the time period set the Office action to which the Notice is attached to avoid abandonment under 35 U.S.C. § 133 (extensions of time may be obtained under the provisions of 37 CFR 1.136(a)).

The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 C.F.R. 1.821 - 1.825 for the following reason(s):

- ☐ 1. This application clearly fails to comply with the requirements of 37 C.F.R. 1.821-1.825. Applicant's attention is directed to the final rulemaking notice published at 55 FR 18230 (May 1, 1990), and 1114 OG 29 (May 15, 1990). If the effective filing date is on or after July 1, 1998, see the final rulemaking notice published at 63 FR 29620 (June 1, 1998) and 1211 OG 82 (June 23, 1998).
- ☐ 2. This application does not contain, as a separate part of the disclosure on paper copy, a "Sequence Listing" as required by 37 C.F.R. 1.821(c).
- ☐ 3. A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 C.F.R. 1.821(e).
- ☐ 4. A copy of the "Sequence Listing" in computer readable form has been submitted. However, the content of the computer readable form does not comply with the requirements of 37 C.F.R. 1.822 and/or 1.823, as indicated on the attached copy of the marked -up "Raw Sequence Listing."
- ☐ 5. The computer readable form that has been filed with this application has been found to be damaged and/or unreadable as indicated on the attached CRF Diskette Problem Report. A Substitute computer readable form must be submitted as required by 37 C.F.R. 1.825(d).
- ☐ 6. The paper copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 C.F.R. 1.821(e).
- ☒ 7. Other: The amendment of April 27, 2000 refers to a submitted CRF for the amended sequences, however no such form has been received by the office; therefore applicant is asked to resubmit the CRF and associated information.

**Applicant Must Provide:**

- ☒ An initial or substitute computer readable form (CRF) copy of the "Sequence Listing".
- ☒ An initial or substitute paper copy of the "Sequence Listing", as well as an amendment directing its entry into the specification.
- ☒ A statement that the content of the paper and computer readable copies are the same and, where applicable, include no new matter, as required by 37 C.F.R. 1.821(e) or 1.821(f) or 1.821(g) or 1.825(b) or 1.825(d).

For questions regarding compliance to these requirements, please contact:

For Rules Interpretation, call (703) 308-4216

For CRF Submission Help, call (703) 308-4212

PatentIn Software Program Support

Technical Assistance.....703-287-0200

To Purchase PatentIn Software.....703-306-2600

340-SL-12-Dec-02  
SEQUENCE LISTING

<110> Choi et. al.

<120> Streptococcus pneumoniae Antigens and Vaccines

<130> PB340P2

<140> 08/961,083

<141> 1997-10-30

<150> 60/029,960

<151> 1996-10-31

<160> 4

<170> PatentIn version 3.0

<210> 1

<211> 2389

<212> DNA

<213> Streptococcus pneumoniae

<220>

<221> SITE

<222> (1368)..(1368)

<223> n equals a, c, g, or t

---

<400> 1	
ttcttacgag ttgggactgt atcaagctag aacgggtaag gaaaataatc gtgtttccta	60
tatagatgga aaacaagcga cgcaaaaaac ggagaatttg actcctgatg aggttagcaa	120
gcgtgaagga atcaatgctg agcaaatcgt catcaagata acagaccaag gctatgtcac	180
ttcacatggc gaccactatc attattacaa tggttaagggtt ccttatgacg ctatcatcag	240

## 340-SL-12-Dec-02

tgaagaatta	ctcatgaaag	atccaaacta	taagctaaaa	gatgaggata	ttgttaatga	300
ggtcaagggg	ggatatgtta	tcaaggtaga	tggaaaatac	tatgtttacc	ttaaggatgc	360
tgcccacg	gataacgtcc	gtacaaaaga	ggaaatcaat	cgacaaaaac	aagagcatag	420
tcaacatcgt	gaagggtggaa	ctccaagaaa	cgatgggtgct	gttgcccttg	cacgttcgca	480
aggacgctat	actacagatg	atgggttatat	ctttaatgct	tctgatataca	tagaggatac	540
tggtgatgct	tatatcggtc	ctcatggaga	tcattaccat	tacattccta	agaatgagtt	600
atcagctagc	gagttggctg	ctgcagaagc	cttcctatct	ggtcgaggaa	atctgtcaaa	660
ttcaagaacc	tatcgccgac	aaaatagcga	taacacttca	agaacaaact	gggtaccttc	720
tgtaagcaat	ccaggaacta	caaatactaa	cacaagcaac	aacagcaaca	ctaacagtca	780
agcaagtcaa	agtaatgaca	ttgatagtct	cttgaaacag	ctctacaaac	tgcctttgag	840
tcaacgacat	gtagaatctg	atggccttgt	ctttgatcca	gcacaaatca	caagtcgaac	900
agctagaggt	gttgcagtgc	cacacggaga	tcattaccac	ttcatccctt	actctcaaact	960
gtctgaattg	gaagaacgaa	tcgctcgat	tattcccctt	cgttatcggt	caaaccattg	1020
ggtaccagat	tcaaggccag	aacaaccaag	tccacaaccg	actccggaac	ctagtccagg	1080
cccgcaacct	gcaccaaact	ttaaaataga	ctcaaattct	tctttgggta	gtcagctggg	1140
acgaaaagtt	ggggaaggat	atgtattcga	agaaaagggc	atctctcggt	atgtctttgc	1200
gaaagattta	ccatctgaaa	ctgttaaaaa	tcttgaaagc	aagttatcaa	aacaagagag	1260
tgtttcacac	actttaactg	ctaaaaaaga	aaatgttgct	cctcgtgacc	aagaatttta	1320
tgataaagca	tataatctgt	taactgaggc	tcataaagcc	ttgtttgnaa	ataagggctg	1380
taattctgat	ttccaagcct	tagacaaatt	attagaacgc	ttgaatgatg	aatcgactaa	1440
taaagaaaaa	ttggtagatg	atttattggc	attcctagca	ccaattaccc	atccagagcg	1500
acttgcaaaa	ccaaattctc	aaattgagta	tactgaagac	gaagttcgta	ttgctcaatt	1560
agctgataag	tatacaacgt	cagatgggta	catttttgat	gaacatgata	taatcagtga	1620
tgaaggagat	gcatatgtaa	cgccctatat	gggccatagt	cactggattg	gaaaagatag	1680
cctttctgat	aaggaaaaag	ttgcagctca	agcctatact	aaagaaaaag	gtatcctacc	1740
tccatctcca	gacgcagatg	ttaaagcaaa	tccaactgga	gatagtgcag	cagctatttta	1800
caatcgtgtg	aaaggggaaa	aacgaattcc	actcgttcga	cttccatata	tggttgagca	1860
tacagttgag	gttaaaaaacg	gtaatttgat	tattcctcat	aaggatcatt	accataatat	1920
taaatttgct	tggfittgatg	atcacacata	caaagctcca	aatggctata	ccttggaaga	1980
tttgtttg	acgattaagt	actacgtaga	acaccctgac	gaacgtccac	attctaata	2040
tggatggggc	aatgccagtg	agcatgtgtt	aggcaagaaa	gaccacagtg	aagatccaaa	2100
taagaacttc	aaagcggatg	aagagccagt	agaggaaaca	cctgctgagc	cagaagtccc	2160

## 340-SL-12-Dec-02

tcaagtagag actgaaaaag tagaagccca actcaaagaa gcagaagttt tgcttgcgaa 2220  
 agtaacggat tctagtctga aagccaatgc aacagaaact ctagctgggtt tacgaaataa 2280  
 tttgactctt caaattatgg ataacaatag tatcatggca gaagcagaaa aattacttgc 2340  
 gttgttaaaa ggaagtaatc cttcatctgt aagtaaggaa aaaataaac 2389

&lt;210&gt; 2

&lt;211&gt; 796

&lt;212&gt; PRT

&lt;213&gt; Streptococcus pneumoniae

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (456)..(456)

&lt;223&gt; Xaa equals any naturally occurring amino acid

&lt;400&gt; 2

Ser Tyr Glu Leu Gly Leu Tyr Gln Ala Arg Thr Val Lys Glu Asn Asn  
 1 5 10 15

Arg Val Ser Tyr Ile Asp Gly Lys Gln Ala Thr Gln Lys Thr Glu Asn  
 20 25 30

Leu Thr Pro Asp Glu Val Ser Lys Arg Glu Gly Ile Asn Ala Glu Gln  
 35 40 45

Ile Val Ile Lys Ile Thr Asp Gln Gly Tyr Val Thr Ser His Gly Asp  
 50 55 60

His Tyr His Tyr Tyr Asn Gly Lys Val Pro Tyr Asp Ala Ile Ile Ser  
 65 70 75 80

Glu Glu Leu Leu Met Lys Asp Pro Asn Tyr Lys Leu Lys Asp Glu Asp  
 85 90 95

Ile Val Asn Glu Val Lys Gly Gly Tyr Val Ile Lys Val Asp Gly Lys  
 100 105 110

Tyr Tyr Val Tyr Leu Lys Asp Ala Ala His Ala Asp Asn Val Arg Thr  
 115 120 125

Lys Glu Glu Ile Asn Arg Gln Lys Gln Glu His Ser Gln His Arg Glu  
 130 135 140

Gly Gly Thr Pro Arg Asn Asp Gly Ala Val Ala Leu Ala Arg Ser Gln  
 145 150 155 160

Gly Arg Tyr Thr Thr Asp Asp Gly Tyr Ile Phe Asn Ala Ser Asp Ile  
 165 170 175

Ile Glu Asp Thr Gly Asp Ala Tyr Ile Val Pro His Gly Asp His Tyr  
 180 185 190  
 His Tyr Ile Pro Lys Asn Glu Leu Ser Ala Ser Glu Leu Ala Ala Ala  
 195 200 205  
 Glu Ala Phe Leu Ser Gly Arg Gly Asn Leu Ser Asn Ser Arg Thr Tyr  
 210 215 220  
 Arg Arg Gln Asn Ser Asp Asn Thr Ser Arg Thr Asn Trp Val Pro Ser  
 225 230 235 240  
 Val Ser Asn Pro Gly Thr Thr Asn Thr Asn Thr Ser Asn Asn Ser Asn  
 245 250 255  
 Thr Asn Ser Gln Ala Ser Gln Ser Asn Asp Ile Asp Ser Leu Leu Lys  
 260 265 270  
 Gln Leu Tyr Lys Leu Pro Leu Ser Gln Arg His Val Glu Ser Asp Gly  
 275 280 285  
 Leu Val Phe Asp Pro Ala Gln Ile Thr Ser Arg Thr Ala Arg Gly Val  
 290 295 300  
 Ala Val Pro His Gly Asp His Tyr His Phe Ile Pro Tyr Ser Gln Met  
 305 310 315 320  
 Ser Glu Leu Glu Glu Arg Ile Ala Arg Ile Ile Pro Leu Arg Tyr Arg  
 325 330 335  
 Ser Asn His Trp Val Pro Asp Ser Arg Pro Glu Gln Pro Ser Pro Gln  
 340 345 350  
 Pro Thr Pro Glu Pro Ser Pro Gly Pro Gln Pro Ala Pro Asn Leu Lys  
 355 360 365  
 Ile Asp Ser Asn Ser Ser Leu Val Ser Gln Leu Val Arg Lys Val Gly  
 370 375 380  
 Glu Gly Tyr Val Phe Glu Glu Lys Gly Ile Ser Arg Tyr Val Phe Ala  
 385 390 395 400  
 Lys Asp Leu Pro Ser Glu Thr Val Lys Asn Leu Glu Ser Lys Leu Ser  
 405 410 415  
 Lys Gln Glu Ser Val Ser His Thr Leu Thr Ala Lys Lys Glu Asn Val  
 420 425 430  
 Ala Pro Arg Asp Gln Glu Phe Tyr Asp Lys Ala Tyr Asn Leu Leu Thr  
 435 440 445  
 Glu Ala His Lys Ala Leu Phe Xaa Asn Lys Gly Arg Asn Ser Asp Phe  
 450 455 460  


---

 Gln Ala Leu Asp Lys Leu Leu Glu Arg Leu Asn Asp Glu Ser Thr Asn  
 465 470 475 480  


---

 Lys Glu Lys Leu Val Asp Asp Leu Leu Ala Phe Leu Ala Pro Ile Thr  
 485 490 495  
 His Pro Glu Arg Leu Gly Lys Pro Asn Ser Gln Ile Glu Tyr Thr Glu  
 500 505 510



340-SL-12-Dec-02

Asp Glu Val Arg Ile Ala Gln Leu Ala Asp Lys Tyr Thr Ser Asp  
515 520 525  
Gly Tyr Ile Phe Asp Glu His Asp Ile Ile Ser Asp Glu Gly Asp Ala  
530 535 540  
Tyr Val Thr Pro His Met Gly His Ser His Trp Ile Gly Lys Asp Ser  
545 550 555 560  
Leu Ser Asp Lys Glu Lys Val Ala Ala Gln Ala Tyr Thr Lys Glu Lys  
565 570 575  
Gly Ile Leu Pro Pro Ser Pro Asp Ala Asp Val Lys Ala Asn Pro Thr  
580 585 590  
Gly Asp Ser Ala Ala Ala Ile Tyr Asn Arg Val Lys Gly Glu Lys Arg  
595 600 605  
Ile Pro Leu Val Arg Leu Pro Tyr Met Val Glu His Thr Val Glu Val  
610 615 620  
Lys Asn Gly Asn Leu Ile Ile Pro His Lys Asp His Tyr His Asn Ile  
625 630 635 640  
Lys Phe Ala Trp Phe Asp Asp His Thr Tyr Lys Ala Pro Asn Gly Tyr  
645 650 655  
Thr Leu Glu Asp Leu Phe Ala Thr Ile Lys Tyr Tyr Val Glu His Pro  
660 665 670  
Asp Glu Arg Pro His Ser Asn Asp Gly Trp Gly Asn Ala Ser Glu His  
675 680 685  
Val Leu Gly Lys Lys Asp His Ser Glu Asp Pro Asn Lys Asn Phe Lys  
690 695 700  
Ala Asp Glu Glu Pro Val Glu Glu Thr Pro Ala Glu Pro Glu Val Pro  
705 710 715 720  
Gln Val Glu Thr Glu Lys Val Glu Ala Gln Leu Lys Glu Ala Glu Val  
725 730 735  
Leu Leu Ala Lys Val Thr Asp Ser Ser Leu Lys Ala Asn Ala Thr Glu  
740 745 750  
Thr Leu Ala Gly Leu Arg Asn Asn Leu Thr Leu Gln Ile Met Asp Asn  
755 760 765  
Asn Ser Ile Met Ala Glu Ala Glu Lys Leu Leu Ala Leu Leu Lys Gly  
770 775 780  
Ser Asn Pro Ser Ser Val Ser Lys Glu Lys Ile Asn  
785 790 795

<210> 3

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 3  
agtcggatcc ttcttacgag ttgggactgt atcaagc

37

<210> 4

<211> 40

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 4  
agtcaagctt gtttattttt tccttactta cagatgaagg

40

Simulation

2HD IBM



**HGS**

Applicants: Choi et al.  
Appln. No.: 08/961,083  
Filed: October 30, 1997  
Docket No. PB340P2  
Contents: Sequence Listing in  
Computer Readable Form